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ABSTRACT

This report analyzes the "digital divide" between those who have access to online information and opportunities and those who do not. The research included discussion groups with more than 100 low-income Internet users, interviews with nearly 100 community technology leaders and other experts, analysis of 1,000 Web sites, and a review of the literature and promising activities across the United States. The analysis shows that, although many underserved communities are gaining access to the Internet, many are not benefiting fully because of barriers they face related to content. The most far-reaching barrier is the scarcity of information regarding user's local communities. Other barriers include literacy limitations, language barriers, and the lack of cultural diversity in Internet content. A conservative estimate is that at least 50 million U.S. residents, roughly 20%, face 1 or more content-related barriers that leave them underserved. Focus groups have defined the things that adult and younger users want, and these wants have been used to develop three strategies to

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promote a positive information society: (1) start with what can be done immediately; (2) put in place a new national strategy that leads and supports communities as they use the new online tools to tackle real community concerns and ensure that no Americans are left out; and (3) carry out the research and development needed for the knowledge base that ensures effective community and national efforts. Six appendixes contain a list of people interviewed for the analysis, content categories used, a list of online resources analyzed, the content criteria used, examples of online content for the underserved, and a list of information resources used. (Contains 59 endnotes.) (SLD)

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ONLINE CONTENT FOR LOW-INCOME AND UNDERSERVED AMERICANS

THE DIGITAL DIVIDE'S NEW FRONTIER

A Strategic Audit of Activities and Opportunities

March 2000

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ONLINE CONTENT FOR LOW-INCOME AND UNDERSERVED AMERICANS: THE DIGITAL DIVIDE'S NEW FRONTIER

A Strategic Audit of Activities and Opportunities
A Publication of The Children's Partnership

March 2000

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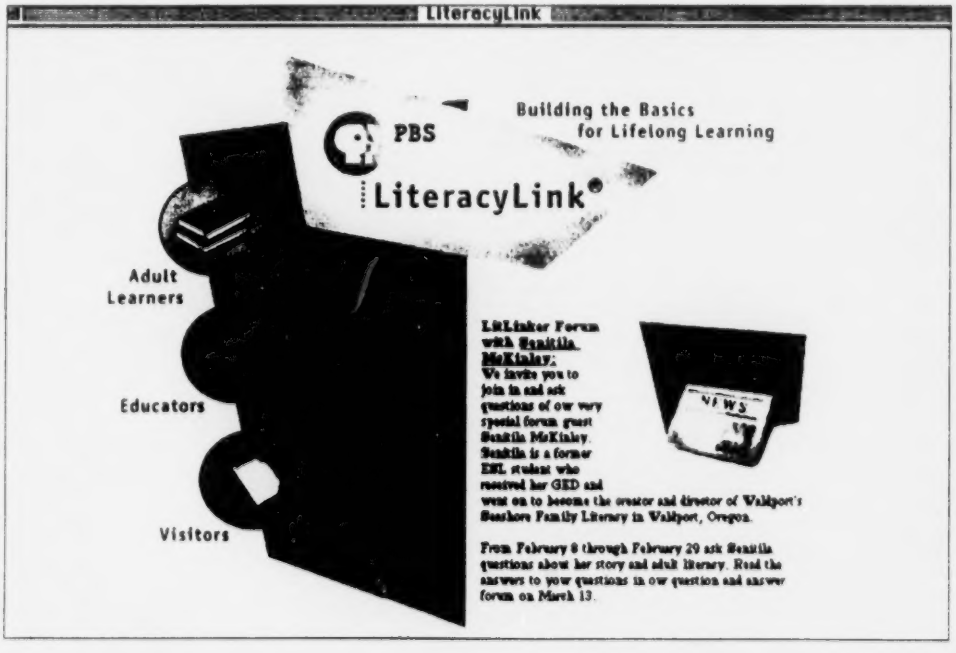
The websites depicted have been mentioned in this report and we encourage readers to visit them.


LiteracyLink
PBS
Building the Basics for Lifelong Learning
LiteracyLink®
Adult Learners
Educators
Visitors
LitLinker Forum with Seattla McKinley:
We invite you to join in and ask questions of our very special forum guest Seattla McKinley. Seattla is a former ESL student who received her GED and went on to become the creator and director of Valkport's Seashore Family Literacy in Valkport, Oregon.
From February 8 through February 29 ask Seattla questions about her story and adult literacy. Read the answers to your questions in our question and answer forum on March 13.

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ONLINE CONTENT FOR LOW-INCOME AND UNDERSERVED AMERICANS

THE CHILDREN'S PARTNERSHIP

EXECUTIVE SUMMARY

THE DIGITAL DIVIDE'S NEW FRONTIER

Computers and the Internet are revolutionizing the ways people learn, communicate, and earn a living. Yet study after study has shown that America faces a significant and troubling "digital divide" between those who have access to online information and opportunities and those who do not. While this digital divide has received a lot of attention from the press, policymakers, and the Internet industry, an important aspect has been neglected: content. This new dimension of the digital divide is beginning to take shape, however, and is having a profound impact on young people and those who guide and teach them.

Through its five years of work to bridge the digital divide, The Children's Partnership has found that it is as important to create useful content on the Internet – material and applications that serve the needs and interests of millions of low-income and underserved Internet users – as it is to provide computers and Internet connections. For Americans at risk of being left behind, useful content includes the following: (1) employment, education, business development and other information; (2) information that can be clearly understood by limited-literacy users; (3) information in multiple languages; and (4) opportunities to create content and interact with it so that it is culturally appropriate.

This report, the result of nine months of research, analyzes this new frontier of the digital divide, providing an analysis of the "state of the art" along with recommendations for policymakers, corporate leaders, technology center staff, philanthropists, and those who work with and on behalf of underserved Americans. (Underserved Americans, for the purpose of this report, include people who have low incomes, live in rural communities, have limited education, or are members of racial or ethnic minorities.) Our research included discussion groups with more than 100 low-income Internet users, interviews with nearly 100 community technology leaders and other experts, analysis of 1,000 Web sites, and a review of the literature and promising activities across the country. This report is the latest in a series of "Strategic Audits" produced by The Children's Partnership on subjects of national importance that affect large numbers of young people.

This Audit has three purposes:

1. To describe the groups of Americans who are underserved by Internet content, what these groups want in the online world, and the barriers they face;

2. To analyze the online content currently available for low-income and underserved Americans, emphasizing the major gaps and the most promising building blocks; and

3. To provide a road map for action – identifying ways in which the public and private sectors working with underserved communities can ensure rich and relevant online content for Americans at risk of being left behind.

CONTENT-RELATED BARRIERS: TAKING A HEAVY TOLL

The Children's Partnership research found that, though many underserved communities are gaining access to the Internet, many are not benefiting fully because of barriers they face related to content. In order to develop a map of the key issues, we focused on four significant barriers that affect large numbers of Americans:

Lack of Local Information. Perhaps the most far-reaching barrier of all is the scarcity of the kind of information that users want most – local information about their community. While this barrier potentially affects a great many Americans, it disproportionately affects Internet users living on limited incomes, especially the nearly 21 million Americans over age 18 whose annual income is less than $14,150 for a family of three (the level used by the federal government to define poverty).

Literacy Barriers. Online content has been primarily designed for Internet users who have discretionary money to spend. The vast majority of information on the Net is written for an audience that reads at an average or advanced literacy level. Yet 44 million American adults, roughly 22 percent, do not have the reading and writing skills necessary for functioning in everyday life.

Language Barriers. Today, an estimated 87 percent of documents on the Internet are in English. Yet, at least 32 million Americans speak a language other than English as their primary language. They are often left out of the benefits the Internet offers.

Lack of Cultural Diversity. The Internet can be a powerful tool to share and celebrate the uniqueness of cultures in this country and beyond. However, despite the tremendous surge in ethnic portals, there is a lack of Internet content generated by ethnic communities themselves or organized around their unique cultural interests and practices. For many of the 26 million Americans who are foreign born, the lack of cutural diversity in available content serves as a real barrier.

AMERICANS POTENTIALLY UNDERSERVED BECAUSE OF INTERNET-CONTENT BARRIERS

Type of Internet Barrier	Estimated Number of Americans Affected
Lack of local information	21 million
Literacy barriers	44 million
Language barriers	32 million
Lack of cultural diversity	26 million

A conservative estimate is that at least 50 million Americans – roughly 20 percent – face one or more content-related barriers that stand between them and the benefits offered by the Internet. These barriers are taking a heavy toll on the 50 million underserved Americans. A high proportion of the underserved are likely to become more active citizens, consumers, and entrepreneurs in this new media, increasing their opportunities for success, if Internet content became more relevant, and if underserved communities had access to content-related services such as training and technical assistance.

WHAT UNDERSERVED INTERNET USERS WANT

Through focus groups with members of our target population and through interviews with a variety of people who work with underserved users, we probed to learn what underserved Americans want from content on the Internet.

Adults want:

- Practical information focusing on local community:
  - *Local jobs listings including jobs requiring entry-level skills*
  - *Local housing listings*
  - *Community information*
- Information at a basic literacy level:
  - *Preparation for securing a high school equivalency degree*
  - *Online resources as opposed to print materials*
  - *Online learning materials with multimedia components*
- Content for non-English speakers; and
  - *Online translation tools*
  - *Online instructional materials*
  - *Information in native languages*
- Cultural information.
  - *Cultural exploration and development*
  - *Cultural spaces about ethnic and local cultural interests*
  - *Health information and other vital information geared to particular racial and ethnic groups*

Children and youth want:

- Participation and self-expression;
- High-impact packaging with interactivity;
- Multimedia; and
- Youth-friendly tutorials.

Both adults and youth want:

- Easier searching and usability;
- Encouragement; and
- Involvement.

THE STATE OF THE ART

Using what underserved users reported they want from the Internet, The Children's Partnership utilized a combination of approaches to explore what is available on the Web that meets these needs. Although we clearly captured only a fragment of the vast Internet content now available, our core findings were corroborated by the various sources we used.

We assessed 1,000 Web sites from portals that we selected to audit because they represent, according to users and informants we worked with, some of the best on the Web. Our findings here represent a systematic scan rather than a comprehensive mapping of the Web's content for various underserved groups.

Our research found the following:

• Generalized information (as opposed to local or community content) on topics of interest is available (26 percent of the Web sites had such information). Generally this information is not at literacy levels and in languages that underserved Americans need.

• Most of the online content we found written at a limited-literacy reading level was designed for the developmental needs and interests of young children and did not provide the information needed by adults with limited-literacy skills (only 1 percent of the Web sites were found to meet this need).

• Much of the multilingual content we found is in Spanish, presumably responsive to the market reality that Hispanics are the largest foreign-born minority group. Much of it, however, comes from Latin America or Spain, leaving gaps in Spanish-language content related to finding opportunities in the United States, such as obtaining a job or a high school diploma. Only 2 percent of the content found was multilingual.

• Precisely the information most often requested by the users we interviewed (e.g., local job resources or job listings for entry-level positions) proved to be the most rare and difficult to find (1 percent). Similarly, information about local low-cost housing was, with few exceptions, unavailable (1 percent).

• We did not locate significant examples of cultural information at the local level (about 1 percent); however, general cultural sites are growing for African Americans, Asians, and Hispanics.

• Our review of interface design and searching tools conducted by low-income users underscored the inadequacy of prevailing tools. In our sample of 45 Internet users who participated in our Web search exercise, 80 percent said it took too long to find the information they were asked to find; 65 percent did not find the material understandable or easily organized; and 65 percent did not find the portals assigned easy to use. Difficulties with search tools for the Web point to the importance of training and support as well as better searching mechanisms.

BUILDING BLOCKS FOR THE FUTURE

While content currently on the Web generally does not meet the needs of underserved Americans, we did find positive examples of Web content, along with content development activities that provide useful building blocks for the future. They include Web site products and tools as well as more extensive initiatives. Because this field is so young, most of the initiatives we spotlight are relatively new, while others are still on the drawing boards.

We looked for promising practices in categories that grew directly from what the users in our study cared about and what experts in the field believed would make the most difference. Our research uncovered a variety of efforts around the country involved in content-related projects for underserved communities. Some pioneering nonprofit groups, community technology centers, networks and libraries are developing or aggregating content for underserved users; many are breaking new ground in this area through the design, the quality of information, and the targeted nature of content on their Web sites. Some of the public-private partnerships focus on equipping individuals to be content developers by teaching advanced Web publishing skills; others offer mentoring programs that build technology skills through effective online programs and learning methods; and still others involve underserved users themselves in creating content for their own communities.

NEXT STEPS AND RECOMMENDATIONS

This Audit provides a clear picture of what underserved communities want and need from the online world. That picture can help guide the Information Age in ways that benefit communities and improve the quality of life for all Americans. In addition, the participation of the underserved can greatly enrich our collective culture. Ignoring the voice and vision of underserved communities will limit the ability of this potent interactive medium to function as a tool for greater opportunity.

Five key characteristics. Our research yielded five key characteristics that define a positive information society. These form a framework for our recommendations.

A positive information society:

1. Is community driven and meets real community needs;
2. Overcomes major content barriers facing the underserved;
3. Provides people to help;
4. Offers online content that is easy to use;
5. Is sustainable.

Two prerequisites. There are two prerequisites to our recommendations. First, many of the positive online activities this Audit chronicles require high-quality hardware, software, and high-speed connections, which most underserved communities do not have today. While a great deal can be accomplished with fairly basic infrastructure, all underserved communities need centers of excellence where the more advanced applications are possible. Our findings and recommendations can help inform the efforts of U.S. companies, the U.S. Department of Commerce, the U.S. Department of Education, some foundations, and others to solve this critical infrastructure challenge.

Second, all interested parties must sustain their advocacy efforts to make sure the powerful interactive capabilities of the Internet are actually used to address real community problems. If the positive scenarios described in this Audit are not persistently promoted by civic leaders, elected officials, and corporate leaders alike, the potential of the new medium to achieve genuine social improvement will be lost.

Three Strategies. Based on our findings, we recommend three strategies to promote a positive information society that includes the 20 percent of Americans who are underserved today:

1. Start with what can be done immediately, including steps every community can take.

• **Find Out What Your Community Values:** We urge communities across the country to begin to map what information residents find most useful, how they want it organized, and how the Internet can help residents use education, employment, recreational, and other opportunities. In underserved communities, trusted places like community or religious centers and many others have a leadership role to play.

• **Build New Online Community Resources:** Communities should begin to build online resources based on residents' guidance.

• **Enlist Local Talent:** Communities can tap readily available resources to support them as they build these online resources.

• **Aggregate and Market Available Good Content:** Using the good content for underserved communities identified through this report as a building block, we urge interested parties to gather and organize what does exist so that community technology centers, after-school programs, community colleges, adult literacy centers, libraries, schools, and the like can use it more easily. To make this resource available most efficiently, we recommend that groups that represent underserved constituencies work together to assemble and maintain this resource.

• **Use Search, Translation, and Multimedia Tools to Reach the Underserved:** We urge the corporate sector to take the lead in deploying existing multimedia tools to make online content more useable by Americans with limited literacy and language skills.

• **Direct Available Government Resources Toward Groups That Can Develop Content in Underserved Communities:**

Federal and state governments should use existing grant programs for technology to encourage and support the development of content most valued by underserved communities. A great deal of valuable new content could be developed if even two of the major federal initiatives focused on underserved Americans – the Commerce Department's Technology Opportunities Program and the Department of Education's Community Technology Center program – devoted a quarter of their $45 million budget to content development.

• **Offer Essential Public Information at a Limited-Literacy Reading Level:** We urge government, schools, and libraries to customize their content for those who lack functional literacy.

2. Put in place a national strategy that leads and supports communities as they use the new online tools to tackle real community concerns and ensure that no Americans are left out.

• **Convene an Online Content Strategy Group:** We urge the philanthropic sector to convene leaders from the corporate sector, underserved communities, and government to determine how best to place the content issue on the national agenda. In addition, this strategy group should establish nationwide goals, measurable targets, and key action steps for creating a positive information society.

• **Build Community Information Portals:** Private industry should work with underserved communities to develop and share models for community information portals. The model would be patterned on private industry's "enterprise information portals," which offer clients a one-stop, interactive online center. The tools offered by WeGo.com (http://www.wego.com/index.html) offer an exciting preview of the potential of such portals.

• **Provide Community-Based IT (Information Technology) Preparation and Training in Underserved Communities:** Private philanthropy, the corporate sector, and government should expand the support of community-based IT (information technology) preparation and training in underserved communities. As a way of focusing on highest-need areas, efforts should target the 130 urban and rural areas designated as empowerment zones and enterprise communities because of their economic distress.

• **Create a New Economy Corps:** We urge private philanthropy, the corporate sector, and government to invest in a nationwide network of the people who support technology skill development in underserved communities. A New Economy Corps should be established to form a "people network." Serving as an Information Age counterpart to the Peace Corps but focused on the United States, New Economy Corps members would go into high-need communities and serve as catalysts for community building, using technology.

• **Strengthen and Expand the Nationwide System of Community Technology Centers:** The nation needs an ongoing investment in a nationwide network of institutions that can serve as the community-based technology hub in underserved communities, helping residents both produce and use relevant content and teaching skills that make individuals more effective participants in the Internet arena.

• **Offer Incentives for Content Developed by and for Underserved Americans:** Business and government should provide incentives for underserved Americans to create high-quality content that has value to their peers.

3. Carry out the research and development (R&D) that creates the knowledge base for community and national efforts to be effective.

• **Undertake Market Research About Underserved Americans:** We urge that additional research be undertaken to better answer key questions about underserved groups, their information needs, and the barriers they face.

• **Collect, Evaluate, and Disseminate Information About What Works:** Both the government and the private sector should track and evaluate what is working to achieve positive outcomes. As knowledge is gained, it should be communicated to the players who support and carry out these initiatives.

• **Develop a Business Model for e-Community Building:** We urge entrepreneurs from underserved communities to join forces with business leaders and business schools to develop a business model for how e-community building works.

• **Create New Search Capabilities and Other Tools:** Search tools should be developed to quickly find online content written at a limited-literacy reading level. In addition, we recommend the exploration of new software with advanced artificial intelligence that allows complex Web sites to be made simpler.

• **Develop Standards to Guide Online Content Development:** Standards have proven crucial in the development of other educational tools as well as other media to ensure positive uses and a level playing field. Basic concepts like ensuring online content is accessible at various literacy levels and in different languages should be incorporated in the development of Internet standards.

• **Learn What Motivates the Underserved and Begin Outreach Efforts:** Research should be undertaken to learn more about what uses of the Internet will genuinely inspire underserved Americans to give it a try. In addition, more must be learned about how these ideas are most effectively communicated to underserved groups.

CONCLUSION

We look forward to working with all interested parties to mount the advocacy needed to make the positive scenarios identified here a reality. In the meantime, the findings from this Audit document the tremendous untapped opportunity – for low-income and underserved Americans to benefit from new information tools for education, economic development, and civic involvement; and for private enterprise to recognize the market value of low-income, underserved constituencies. This confluence represents a rare opportunity to advance the public's interest by using, in part, the power of the marketplace.

We hope this first-ever analysis of the adequacy of online content for disadvantaged communities provides an impetus and road map that enable underserved Americans to improve their life prospects and the corporate sector to do its part to create a positive information society for our generation and those that follow.

ONLINE CONTENT FOR LOW-INCOME AND UNDERSERVED AMERICANS

A STRATEGIC AUDIT ON ACTIVITIES AND OPPORTUNITIES

BY THE CHILDREN'S PARTNERSHIP

I. INTRODUCTION AND OVERVIEW

Most studies of access have focused on the gap between those who can afford the hardware and software they need to go online and those who can't. A new dimension of the "digital divide" is beginning to take shape, however — one with a profound impact on young people and those who guide and teach them: content.

Through its five years of work to bridge the "digital divide," The Children's Partnership has found that it is as important to create useful content on the Internet — material and applications that serve the needs and interests of millions of low-income and underserved Internet users — as it is to provide computers and Internet connections.

As computers and the Internet revolutionize how people of all ages learn, communicate, entertain themselves and do their jobs, the information and opportunities available online are increasingly necessary to thrive in a changing world. At the same time, it has been well documented that significant numbers of Americans are being shut out of these benefits because they lack access to computers and the Internet, creating a so-called digital divide.

WHY WE CONDUCTED THIS ANALYSIS

Much of the public concern about the digital divide has been focused on the gap between those who have the "boxes" and "wires" they need for Internet access and those who do not. However, a new dimension of the digital divide is beginning to take shape, one with a profound impact on young people and those who guide and teach them: content. For Americans at risk of being left behind, the characteristics of relevant content include: (1) needed employment, education, and other information; (2) reading levels that can be clearly understood by limited-literacy users; (3) multiple languages; and (4) ways for the underserved to create content and interact with it so that it is culturally appropriate.

The lack of relevant online content for lower-income, underserved Americans shuts them out of opportunity in several important ways. First, the Internet is increasingly a tool for transacting life's "business," whether finding a job or internship, getting savings on items purchased, or receiving government benefits. If online information is not available in forms that can be easily found and used by underserved Americans, this group — one that has historically had difficulty getting information and finding opportunities — will be further disadvantaged.

Second, the Internet is transforming the two traditional paths for self-improvement for young people in this country: getting a good education and learning marketable job skills. People who cannot access or benefit from the Internet are falling further behind.

Third, the Internet is starting to offer promising solutions to persistent challenges for groups that do have access to these technology tools. Technology, for example, is providing new opportunities for disabled Americans and people living in remote rural areas. In the same way, information technology holds the potential — largely untapped — to give underserved Americans powerful new tools to earn a living, build their communities, and engage as citizens in unprecedented ways.

Because content is such a crucial Internet issue for underserved Americans, The Children's Partnership set out to map this uncharted terrain while the evolution of the Internet can still be influenced. This Audit, the result of nine months of research, provides an analysis of the "state of the art" along with recommendations for policymakers, corporate leaders, technology center staff, philanthropists, and those who work with and on behalf of underserved Americans.

PURPOSES OF THIS AUDIT

This Audit has three purposes:

1. To describe who the underserved Americans are in relation to Internet content, the barriers they face, and what they want in the online world;

2. To analyze the online content currently available in the context of what low-income and underserved Americans want, emphasizing what exists, chief gaps, and promising building blocks; and

3. To provide a roadmap for action — identifying ways in which the public and private sectors working in concert with underserved communities can ensure rich and relevant online content for Americans at risk of being left behind.

ABOUT THE CHILDREN'S PARTNERSHIP (http://www.childrenspartnership.org)

This investigation fits squarely within the mission of The Children's Partnership, a national policy and strategy center that undertakes research, analysis, and advocacy to place the needs of America's nearly 70 million children and youth, particularly the underserved, at the forefront of emerging policy debates. Our hallmark is to forge agendas for youth in areas where none exist, to help ensure that disadvantaged children have the resources they need to succeed, and to involve more Americans in the cause for children.

Since 1994, when we published the first-ever report on how the digital age affects children and how to best advance their interests (*America's Children & The Information Superhighway*), we have worked to help develop safe, high-quality online

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media beneficial to children and families, to bring the benefits of the information revolution to youth, and to equip parents and others as guides and advocates for children.

The Children's Partnership is also working with 11 low-income communities in California and with other nonprofit partners, helping to build sustainable community technology centers in very diverse low-income neighborhoods as models that can be replicated across the country. To date, these Computers In Our Future centers have served nearly 4,000 young people (well on their way to a goal of 9,000), teaching them computer skills and providing job training (see http://www.ciof.org.). In addition, we have partnered with the National Urban League, National PTA, American Library Association, the U.S. Department of Education, and many others, along with corporate allies such as America Online, AT&T, Mattel, and Microsoft.

About Our Strategic Audits

This investigation uses an analytic tool developed by The Children's Partnership called a "Strategic Audit." Through the Audit process, The Children's Partnership gathers, analyzes, and presents information on a timely subject. The subject is generally an emerging issue where there is not already a widely recognized research base, and where information and data from several previously unrelated fields are synthesized. The focus is on putting together information that leads directly to decision making. The analysis takes the form of a written product designed to be concise, accessible, and geared toward action. This Strategic Audit is one of a series produced by The Children's Partnership on subjects of national importance that affect large numbers of young people.

FREQUENTLY ASKED QUESTIONS (FAQS)

1. Why did a children's organization choose to conduct this research?

We believe that the uses of the Internet and its content will affect children's future opportunities in many profound ways. We concluded that children's needs are best served at this time by understanding the broader context of this emerging issue area, so while we did include young people in our user group surveys, we did not focus on them exclusively. Getting a better handle on how the new medium affects parents and local communities, for example, will help leaders concerned with children to formulate the children's agenda in this evolving field.

2. What do we mean by "Internet Content"?

At this very early stage in the evolution of interactive media, content encompasses several different categories, including:

- Information That Is More Widely Available — material that was previously accessible only to a few is now available to anyone with online access;
- Information That Can Be Customized by the User — material that can be aggregated and organized for or by any group of consumers;
- Information That Flows from Many to Many — in contrast to broadcast media, which flows from one source to many users;
- Information That Allows for Interaction Among Users — material that enables a user to comment back or act back rather than simply receive data;
- Information That Enables Users to Become Producers of Information — such as online tutorials or displays of prod ucts created by others.

While these are some of the parameters of Internet content today, the field is evolving rapidly, and the meaning will almost surely be something different in the future.

3. Who are "Underserved Americans" for purposes of this audit?

We concentrate on groups who are "underserved" today in terms of access to computers and the Internet, including Americans who have low incomes, live in rural communities, have limited education, and are members of racial or ethnic minorities. Low-income is defined as having an annual family income of less than $14,150 for a family of three, the level used by the federal government to define poverty. Throughout this report we use the terms "low-income" and "underserved Americans" to refer to this diverse group.

SCOPE OF THIS AUDIT

The research for this Audit was carried out from April 1999 through December 1999, and builds on the expertise of The Children's Partnership staff and consultants. The project was guided by a group of about thirty knowledgeable and diverse individuals from across the country who served as project advisors. (See inside front cover). We used a set of research methods designed to yield an accurate "baseline" for understanding what underserved Internet users want and what they can locate online.

RESEARCH METHODS

1. ***Discussions with user groups.*** We conducted meetings with 12 groups of low-income technology users, partnering with community technology centers that serve low-income communities on the east and west coasts. The centers included stand-alone technology programs, computer access centers within multiservice community centers, computer labs in public housing facilities, and nonprofit multimedia training labs. We were interested in hearing the views of adult end-users as well as young people.

We talked with a total of 107 individuals: 56 adults and 51 children and youth (age 10 to 22). All the participants were low-income. They represented a diverse mix of age, gender, and ethnicity. Most of the adults (60 percent) were in their twenties and the rest were in the 30- to 60-year-old bracket; one group of users was made up of a dozen seniors. About 95 percent of the youth were in their later teens. Women made up 65 percent of the user groups. The ethnic breakdown was 45 percent African Americans, 40 percent Hispanic, 10 percent Caucasian, and 5 percent Asian. From these individuals we learned about the types of Web sites that interest them most (in terms of content and look-and-feel) and what information they find most difficult to locate.

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Their feedback guided our research by defining what we should be looking for in our analysis of online material and activities.

2. *Interviews with center and community network directors.* Over 30 interviews were conducted with directors of community technology centers and with directors of community networks across the country. The directors of these centers work for organizations housed in or affiliated with park and recreation programs, community colleges, libraries, low-income housing projects, storefront facilities, community multiservice centers, and employment development organizations. Representatives of community networks are associated with networks that offer online access and training over a wide geographic area, including areas as diverse as St. Louis, Missouri; Boulder, Colorado; Minneapolis, Minnesota; Taos, New Mexico; and Appalachia.

3. *Interviews with other experts.* More than 60 additional experts provided our team with insights and guidance about online information for underserved groups. Collectively, these experts bring decades of experience in providing online access and information. They represent education, literacy, academia, library science, museums, information and referral services, development agencies, rural and disabled communities, commercial online content development, and other organizations and institutions. We tapped many of these individuals in the course of designing our research instruments and approach. They pointed us to relevant studies, pertinent data, and promising online activities. Appendix A lists the people interviewed for this Audit.

4. *Web analysis.* To develop a map of content on the Web for underserved Americans, we reviewed 20 community networks, or "portals." These are large areas on the Web that have catalogued and indexed extensive numbers of sites and that link to many others; they are content destinations that attract users because of the rich resources they have aggregated in fairly user-friendly formats. We surveyed a diverse and representative sample where we located information on topics of interest to underserved individuals. Input from users, referrals from experts, and reviews of literature also influenced our selection. The 20 portals vary in nature and include the following:

- Noncommercial sites (e.g., Charlotte's Web, Metropolitan Austin Interactive Network);
- Library and academic sites (e.g., Brooklyn Public Library, The Community Connector); and
- Commercial Web sites (e.g., Yahoo, Snap.com).

See Appendix C for a full listing of the portals included in the study.

We focused our search on portals because, after doing a random search of the Web in two subject categories of interest to our constituents (local housing and jobs), we determined that we could more efficiently develop an overall understanding by focusing on carefully selected sample sites. These large content destinations are known to aggregate high-quality information for Internet users (including low-income users), so an audit of their content could provide a mini-map of some of the best content available.

Our team searched each portal for Web sites in the subject categories that users told us are of interest to them. (Appendix B lists these categories.) We looked for general patterns, gaps, and strengths, but did not make stand-alone assessments of particular sites. We evaluated the sites found according to the following criteria:

- Content (on subjects of interest, including local information);
- Literacy level (limited, intermediate, and advanced);
- Intuitive navigation (ease of use);
- Language (is there information in languages other than English?); and
- Interactivity (can the user interact with the site, send e-mail, etc.?).

In all, we reviewed approximately 1,000 Web sites within these 20 portals and additional sites recommended by key informants.

5. *User Web search exercise.* As a quality assurance measure for our Web analysis, we asked groups of underserved Internet users in technology centers, job development programs, and other media training programs to give us their assessment of the content of portals selected for the analysis. In a Web search, each participant was asked to review several portals; participants tried to locate information similar to what our research team looked for in the Web analysis described above.

6. *Review of relevant literature and data.* A review of existing information enabled us to build on the available knowledge about underserved Internet users, their needs and interests, and efforts (successful or unsuccessful) to respond to their interests. (See Appendix F for a list of resources used.)

A FINAL RESEARCH NOTE

The practical limits of our time and resources meant that this research, though carefully designed and rigorous, provides only an introductory look at this vast topic. A more extensive look will broaden and deepen the findings presented here. In addition, other underserved groups — including people with physical disabilities or different learning styles — are very important and deserve a similar examination. Finally, with content on the Web changing and growing so rapidly, our findings must be viewed as representing a snapshot of the moment in time when they were assembled. Some changes in Web URLs and sites' content may have occurred since our research was completed.

II. CONTENT-RELATED BARRIERS TO THE INTERNET: WHAT ARE THEY AND WHO DO THEY AFFECT?

Though many underserved communities are gaining access to the Internet, many are not benefiting fully because of barriers they face related to content. Four of the most important barriers are: lack of local information, literacy barriers, language barriers, and lack of cultural diversity.

For at least 50 million Americans — roughly 20 percent of the population — one or more content-related barriers stand between them and the benefits offered by the Internet. These barriers are taking a heavy toll on the underserved 50 million Americans. A high proportion of the underserved could become more active citizens, consumers, and entrepreneurs of this new medium, increasing their opportunities for success. For that to happen, Internet content must become relevant, and underserved communities must have access to content-related services such as training and technical assistance.

To provide a framework for our research about Internet content and underserved Americans, in this chapter we provide a brief analysis of what the content-related barriers are and which Americans are affected by them. We begin with a review of the current national picture of computer and Internet access, then outline key content-related Internet barriers and the numbers of Americans potentially affected by them, ending with a look at the untapped market for underserved communities as consumers and producers of valuable online content.

THE STARTING POINT: COMPUTER OWNERSHIP AND INTERNET ACCESS TODAY

While there has been a significant and steady increase in low-income Americans' ownership and use of computers and the Internet, the disparity continues to grow between low-income and higher-income Americans. In fact, the gap has grown in the last year between those at the highest and lowest education levels and between those at the highest and lowest income levels. Chart 1 provides the current picture at a glance.

CHART 1

COMPUTER OWNERSHIP & INTERNET ACCESS AT A GLANCE:

A DISTURBING GAP AMIDST PROGRESS

At Home

Computer ownership among households with children is now almost as common as cable television subscriptions. Internet access among households with children is almost as common as newspaper subscriptions.[1]

Percent of U.S. households with a personal computer: 42[2]

Percent of U.S. households with Internet access: 26[3]

Percent of U.S. households with a telephone: 94.1[4]

At School

Percent of public schools in the U.S. connected to the Internet: 95[5]

Percent of public schools in the U.S. connected to the Internet in 1994: 35[6]

Percent of instructional classrooms connected to the Internet: 63[7]

Percent of instructional classrooms connected to the Internet in 1994: 3[8]

Among Various Groups

Women online: 48 percent of surfers, up from 42 percent in 1996[9]

Two fastest-growing segments of the Net population: children and teens[10]

Percent of small businesses with Net access: 48[11]

Underserved Americans

Percent of children in low-income, rural households with Internet access: 2[12]

Percent of children in urban households earning more than $75,000 with Internet access: 50[13]

Percent of white households with Internet access: 29.8[14]

Percent of black households with Internet access: 11.2[15]

Percent of Hispanic households with Internet access: 12.6[16]

Percent of college-educated individuals with Internet access: 48.9[17]

Percent of individuals with only some high school education with Internet access: 6.3[18]

Percent of two-parent households with Internet access: 39.3[19]

Percent of female, single-parent households with Internet access: 15[20]

Internet and Our Economy

E-commerce spending, holiday season, 1999: $7 billion[21]

E-commerce spending, holiday season, 1998: $3.1 billion[22]

Percent of U.S. real economic growth attributed to Information Technology and Net industries: 29[23]

Percent of GDP attributed to Information Technology and Net industries: 7.8[24]

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CURRENT USES OF THE INTERNET: PATHS TO SELF-IMPROVEMENT FOR UNDERSERVED AMERICANS

With so many low-income Americans gaining access to computers and the Internet, it is now possible to analyze how they are using the Internet: where they access the Net, and what kinds of activities they undertake.

Many studies have shown that, across income levels, the primary use of online technology is e-mail. However, a closer examination of the data shows a high level of use among low-income Americans for self-improvement, whether for online courses, job search or information. These data underscore the desire underserved Americans have for content that improves their life prospects and also points out the potential of the medium to offer opportunities of genuine value to low-income communities.

CHART 2

USES OF THE INTERNET

- **Outside the Home:** Large numbers of low-income people are using the Internet outside the home for online courses and information searches, suggesting that they find public access points to get online and that these public access points help them find jobs and educational opportunities.

Search for Information

57 percent of Americans earning between $10,000 and $14,999 who use the Internet outside the home search for information.

31 percent of those earning $75,000 or more use it for this function.

Job-Related Use

20 percent of Americans earning between $10,000 and $14,999 who use the Internet outside the home use it for job-related tasks.

56 percent of those earning $75,000 or more use it for this function.

- **At Home:** Lower-income Americans are more likely than higher-income Americans to use the Internet for online course work and job searching as well as to search for information.

Job Searching

25 percent of Americans earning between $10,000 and $14,999 who use the Internet at home use it for job searching.

12 percent of those earning $75,000 or more use it for this function.

Online Courses

45 percent of Americans earning between $10,000 and $14,999 who use the Internet at home use it for online courses.

35 percent of those earning $75,000 or more use it for this purpose.

Source: U.S. Department of Commerce, *Falling Through the Net: Defining the Digital Divide*, Charts II-33 & II-38, July 1999.

CONTENT BARRIERS RELATED TO THE INTERNET

Our early discussions with project advisors and community allies made clear that many underserved communities are not benefiting fully from access to the Internet because of various barriers they face related to content. It was also clear that these barriers are even more extensive than the scope of this research project. In order to get a map of the issues, we focused on four barriers that affect large numbers of Americans:

- Lack of most urgently needed local information;
- Literacy barriers;
- Language barriers; and
- Cultural diversity barriers.

It should be recognized that other very important Internet content-related barriers having to do with disability and geographic remoteness, for example, are beyond the research scope of this study. We believe, however, that they deserve further study and that many of the findings and solutions uncovered in this research might address these additional barriers as well.

WHO IS AFFECTED?

Lack of Local Information

"Many of the people in the housing project where I work want to find out about jobs they can do in the neighborhood. If the neighborhood was more connected and mapped online, this kind of information would really make a difference to residents."

Nicol Turner
Net Consulting Group

Perhaps the most far-reaching barrier of all is the scarcity of the kind of information users want most — local information about their community. This content barrier goes to the heart of how the Internet is evolving, as it becomes more and more common for large commercial companies to develop prepackaged information, rather than enable communities to tailor-make their own. This barrier disproportionately affects Internet users living on limited incomes, who cannot afford to travel and who must struggle to meet their survival needs (whether for housing, food, or child care). For the nearly 21 million Americans over age 18 whose annual income is less than $14,150 for a family of three (the level used by the federal government to define poverty)[25] the general absence of community-level information on the Internet serves as a very real barrier.

Literacy Barriers

"When people come in [to the library] who can't read, we encourage them to go to the Web and go to sites that contain many pictures. In the library there are icons/pictures to guide navigation. There should be more audio and video information on the Web, and more material with limited-literacy adults in mind."

Martha Shimmers
Librarian, Public Libraries of Saginaw, Michigan

Because a commercial business model largely guides development of the Internet, online content has been primarily designed for Internet users who have discretionary money to spend, that is, a highly educated audience that reads at average or advanced literacy levels.

Yet 44 million American adults — roughly 22 percent of the adult population [29] — do not have the reading and writing skills necessary for functioning in everyday life.[30] They are served inadequately by today's Internet content.

Ironically, appropriate online content for limited-literacy Americans could help raise literacy levels as well as employment levels, saving business and taxpayers considerable dollars. The learning potential offered by the Internet could help the 75 percent of unemployed adults with reading or writing difficulties and help offset the over $60 billion American businesses lose in productivity each year due to employees' lack of basic skills.[31]

Language Barriers

"An Asian man came into our computer center who couldn't speak very much English. I took him to a language development site with lots of useful exercises, but, after that, there weren't many places to go."

Elena, Computer Lab Assistant
University Settlement, NYC

Today, an estimated 87 percent of documents on the Internet are written in English.[32] Yet, at least 32 million Americans use a primary language other than English.[33] They are often left out of the benefits the Internet offers — either because current search tools are still primitive and difficult to use even for people for whom English is the primary language; because they cannot get easy access to translation programs; or because content in their native language may be developed in another country and may not include information relevant to their community in the United States.

Lack of Cultural Diversity

"I don't know of too many places on the Web like Harlem Live where youth get to express what's going on for them culturally."

Mara Rose, Director
Playing2Win, a community access center in Harlem

Distinctive cultural practices and beliefs among ethnically diverse Americans influence the ways in which these groups participate in everything from their children's education to use of health services to civic activities like voting. Similarly, the diverse cultural and ethnic groups that comprise the United States have their own rich heritage that makes them, as anthropologist Carlos Veles-Ibañez writes, "funds of knowledge within these communities."

The Internet can be a powerful tool to share and celebrate the uniqueness of cultures in this country and beyond. However, the lack of Internet content generated by ethnic communities themselves or organized around their unique cultural interests and practices serves as a formidable barrier, especially for many of the 26 million Americans who are foreign born.

Chart 3 summarizes the number of Americans affected by one or more of these barriers.

CHART 3

AMERICANS POTENTIALLY UNDERSERVED BECAUSE OF INTERNET-CONTENT BARRIERS

Type of Internet Barrier	Estimated Number of Americans Affected
Lack of local information	21 million
Literacy barriers	44 million
Language barriers	32 million
Lack of cultural diversity	26 million

Even taking into account that many Americans fit into more than one of these categories, a conservative estimate is that at least 50 million Americans — roughly 20 percent — face one or more content-related barriers that stand between them and the benefits offered by the Internet.[34]

THE POTENTIAL USE RATE AMONG THE UNDERSERVED

Additional data suggest that a high proportion of the 20 percent of Americans who are "content-underserved" are likely to become active consumers and producers of this new media. For that to happen, content has to be made relevant and appealing and other content-related services such as training and technical assistance must be made available.

Lessons from Cable Television

Many people question whether the Internet will ever become a priority for underserved Americans because of their more urgent needs and limited budgets. The example of cable television suggests that so long as the product is seen as valuable, price alone does not deny a market for media products.

According to the most recent estimates, 56 percent of low-income families have a cable subscription, typically paying about $28 per month for basic service and additional monthly fees for premium service.[35] The potential exists for far greater adoption of digital media like the Internet by underserved communities, if the content is made more relevant.

"New Markets"

In this time of unprecedented economic growth for some Americans, policymakers and opinion leaders are beginning to turn their attention to the untapped potential for commerce in urban and rural areas of poverty. Through various programs like the Initiative for a Competitive Inner City (ICIC) and President Clinton's new Market Initiative, there is an increasing awareness of the market potential in the low-income regions of the country.

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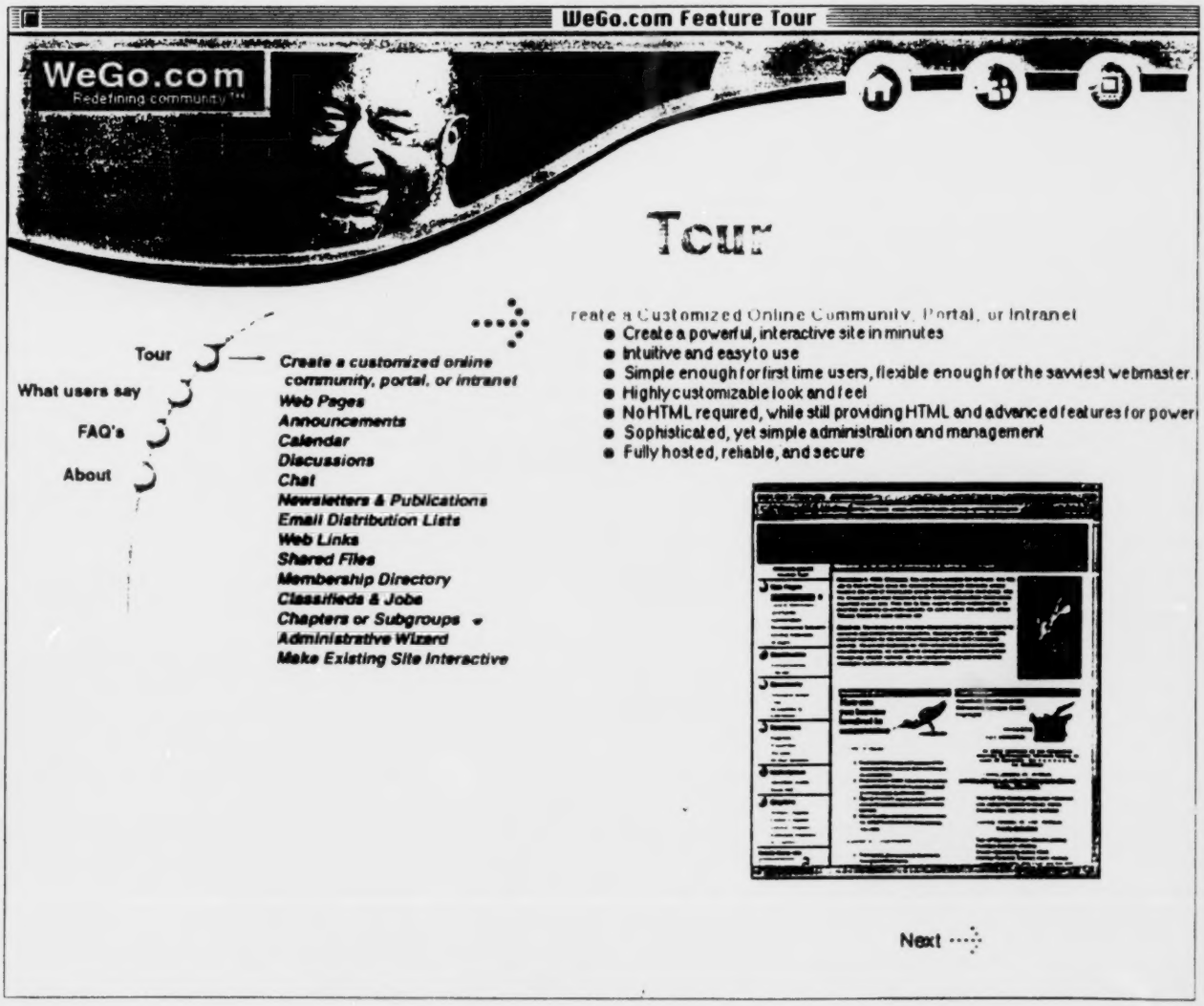
According to recent estimates, the inner-city portions of America[34] represent more than $300 billion in retail purchasing power. Much of this is untapped, despite the ready consumer base, because of a gap in information about retail choices and options.[35]

Add to this the potential for residents in low-income neighborhoods to be trained in the information technology skills necessary to join in the emerging digital economy, and a compelling business case begins to emerge regarding the untapped market underserved communities represent. The business case would not only take into account the spending power these communities hold for consumer products in general, but also the potential of these communities as viable locations for investments in local e-commerce ventures.

A READY DELIVERY SYSTEM

There is a strong and growing nationwide delivery system capable of distributing widely good online content and content development activities:

- More than 300 community technology centers (CTCs) at the Community Technology Network Web site (http://www.ctcnet.net);[36]
- Over 11,000 public libraries offering public access to the Internet — 73 percent of this country's 15,718 public libraries;[37]
- Over 1,100 accredited community colleges across the country;[38] and
- Numerous stand-alone literacy centers and many more that share space with other supportive services for low-income populations.



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III. WHAT UNDERSERVED INTERNET USERS WANT

Focus groups with members of the target population and interviews with a variety of people who work with underserved users revealed that underserved Americans have unique needs and interests when it comes to content on the Internet. A particularly striking characteristic among underserved Americans is that they seek "life information," or what has been referred to in the library and information science field as "community information." Two points stand out about young people in underserved communities: Because they are comfortable with the Internet, they can do much more with it than adult users. They want to create sophisticated Web pages and complex programming that inspire their imagination and teach them technical skills. In addition, because some young people are drawn to online activities that are not always healthy, it is essential that they receive guidance and training to use the medium productively.

Through focus groups with members of the target population and interviews with a variety of people who work with underserved users, we probed what underserved Americans want from content on the Internet. While our findings represent only a starting point for discussion, consistent patterns emerged.

In many respects, users who participated in our focus groups showed similarities to other Internet users, wanting to engage in social, cultural, and professional activities that are fast becoming standard and necessary practice. Though we found tremendous differences between what adult underserved users want and what children and youth want, these differences are also consistent with other Internet users. In several important areas, however, the underserved adult and young users we interviewed have unique needs and interests.

A particularly striking characteristic among underserved Americans is that they seek "life information," or what has been referred to in the library and information science field as "community information":

". . . information that helps citizens with their day-to-day problems and enables them to fully participate as members of their democratic community. It [includes] information pertaining to the availability of human services, such as health care, financial assistance, housing, transportation, education, and child care services; as well as information on recreation programs, clubs, community events, and information about all levels of government."[9]

The users we interviewed are particularly interested in local information — whether about entertainment, jobs, places of worship, or educational opportunities. Appendix B contains a list of the subject categories and topics that we were told are important in local and general forms. We also learned that underserved users want more support and training to access, interpret, and use the information on the Web. Following is a more detailed analysis of what underserved users and people who work with them told us underserved Americans want.

CONTENT AND TOOLS ADULTS WANT

Practical Information Focusing on Local Community

Over and over again, the users we talked with told us that practical information about their local community is what they want most.

Local job listings, including jobs requiring entry-level skills.

The users over the age of 21 in focus groups shared a concern about the lack of local, entry-level jobs on the Web. "There aren't jobs on the Internet that I can apply to; they're too advanced and you need to speak good English," says a computer user and an aide in the computer lab at University Settlement House in New York City. Although the Internet contains many job resources, such as the popular Monster.com, they often do not advertise entry-level positions that are useful to this demographic group.

Local housing listings, including apartments with relatively low rents and homes in foreclosure.

Many of the users we spoke with were particularly interested in local housing information. Cathy Trout, the project director at the Bresee Foundation in Los Angeles, said that some of Bresee's clients want to learn more about homes that are in foreclosure to try to acquire them, but cannot find that information online. Low-rent apartments are in high demand across the country. Magda Escobar, the executive director of Plugged In in East Palo Alto, California, says: "low-rent apartment listings and other pragmatic information would really be useful to have online for residents here."

Community information about neighborhood events, places to go for family outings, and local schools.

Amanda, a mother we spoke with, would like to be able to learn online about events and programs that take place during the summer in her neighborhood in Harlem, "but it isn't easy to get this in one place; you have to talk to different people." Users we interviewed would like to learn about local child care and after-school programs, activities in churches, and services offered by local job agencies and other service institutions.

Information at a Basic Literacy Level

Preparation for securing a high school equivalency degree, especially for low-literacy users and people for whom English is not their primary language.

Helmer Duverge, program director at the National Center for Family Literacy, states that there needs to be more online material for GED preparation that uses business language. A focus group at the Union Settlement House in New York City corroborated that need. Many recent immigrants are preparing for their GED, which has become a standard prerequisite even in entry-level service jobs.

Online resources as opposed to print materials.

Jaleh Behroozi, director of LINCS (Literacy Information & Communication Systems) at the National Institute for Literacy, reported, "there are not many sources designed directly for low-literacy readers online; there are plenty of print materials."

Online tutorials for different software programs; tutorials that show people the benefits of the Internet and how it can assist in day-to-day living.

Users also want more online tutorials that cover basic business productivity tools, such as spreadsheets, and new media tools, such as Photoshop and HTML coding. Center directors would like to see more tutorials, specifically ones tailored to the underserved and limited-literacy populations.

Content for Non-English Speakers

Users want three kinds of content aimed at their linguistic needs: online translation tools, tools to improve their English language skills, and information in their native language.

Online translation tools.

Because much of the content that underserved users want to read on the Web is in English, end users would like translation support.

Online instructional materials.

Many users want tools to develop linguistic and other skills, such as interactive Web sites that contain grammar practice, vocabulary development, and reading assistance. Some users want to visit sites to pick up a few skills here and there, while others want a more comprehensive online curriculum.

Information in native languages.

Users are interested in information in their native languages related to government efforts that affect them, whether Medicare, taxes, or voting. For example, one senior citizen at the computer center in University Settlement House told us that she wants information in Spanish about immigration and has difficulty finding it.

Cultural

Cultural exploration and development.

Judith Pepper, the executive director from La Plaza Telecommunity, told us that users want more spaces on the Internet that reflect unique cultural characteristics and attributes. This would allow people to share information about their heritage and cultural practices; cultural Web sites could foster such rich dialogues. Culture in a broader sense also encompasses art, music, food, sports, or other ethnic-specific areas. The sharing of culture engenders interactions that bring people together.

Cultural spaces about ethnic and local cultural interests.

"Low-income groups don't have enough cultural spaces that they can call their own; they need more environments dedicated to this," says Tamara Sturak, program director of The Interactive University at the University of California, Berkeley. This is important because ethnic-specific Web sites and Web projects can generate rich new content not available widely now.

Health information and other vital information presented with the interests of particular racial and ethnic groups in mind.

For example, Imani Bazzell, director of SisterNet, says that African American women in Urbana-Champaign, Illinois, need information about health issues that typically affect African American women; the information should be local and should be easily available. It should focus on those diseases and illnesses that are more common in the African American community.

CONTENT AND TOOLS CHILDREN AND YOUTH WANT

Two points stand out about young people. First, because of their comfort with the Internet, they can do much more with it, creating sophisticated Web pages and complex programming that inspire their imagination and teach them technical skills. Second, because some young people are drawn to online activities that are not always healthy, it is essential they receive guidance and training to use the medium productively.

Participation and self-expression

Many of the comments from youth in our focus groups demonstrate a consistent message: They want to express themselves on the Internet. More than adults, children and youth see this domain as a place for self-expression, which most likely comes from having more hands-on experience with the medium than adults.

At a number of the places where we conducted user groups, young people are the "experts." Consider the technical know-how of Manuel, a teenager who is a "regular" at Playing2Win. "I look for sites with equations and computer programming scripts to write programs; sometimes I run into very advanced mathematical equations that I can barely follow. But I try."

Packaging and interactivity

How content was packaged and how interactive the content was seemed more important to underserved children and youth than the subject matter itself. In addition, the young people we interviewed do not talk much about the Internet as an education or information resource. Often, we found, mentioning "school" or "learning" to kids in the context of the Internet causes their interest in the conversation to drop. But give them challenging robotics or animation projects that involve extensive computer interaction — or research and information manipulation — and they become engaged.

Unlike the adults, young people in our study see the Internet primarily as a place for gaming and participating in interactive communities with kids all over the world. Many were attracted to games that contain shoot-and-kill, which also offer the most immersive (i.e., life-like) experience and graphics.

Many young people we talked to want more centralized spaces where they can participate in a variety of ways from one portal. It would work best for them if one site contained games; downloadable plug-ins; tips and strategies; e-mail; user profiles; and links to other game environments. Many complain that they have to move around to many different places to find what they need in order to play.

Downloading also has a high value with many youth. They especially like to download music from the Net. They also

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like to download video streams, pictures, and software programs, and they collect HTML codes (to pick up Web design tips). Chat and e-mail interaction is so popular among many youth that some public access centers set strict limits.

Multimedia

Most underserved children and youth seek a multimedia experience on the Web. TV was most often the model. They want to be able to do a lot of activities at once — listen to music, view video clips, read entertainment information, and chat with others — as one can do to some extent in sites such as MTV and Defjam.

Youth-friendly tutorials

The gamers are primarily the ones who want youth-friendly tutorials and online support in order to learn how to create animation and how to do programming. However, interest in tutorials is not limited to gamers.

DIFFERENCES BETWEEN ADULTS AND YOUNG USERS

The adults we interviewed prefer succinct, uncluttered information, whereas younger users want Web sites that have fast-moving imagery and sound. The adults we spoke with prefer a Web page interface that provides information without too many distractions. They want simple text-based presentations with easy-to-use categories that lead quickly to practical content. The medium for them has more utilitarian and practical value than it does for kids, though they do use it for entertainment and cultural purposes as well. Adults also need computer literacy training and outreach. In addition, some of them want to learn Web design skills so they can contribute the wealth of information they know.

Interest in multimedia, combined with the gamesmanship of many youth, makes them a savvy consumer market of the latest innovations in Web technology. In contrast, ideal sites for many adults look like *USA Today* news pages with easy-to-grab, practical information.

Some youth know how to design and understand hypertext technology, which makes them important partners in content development efforts. Yet young people pose a challenge to those who want to encourage positive use of the medium. Young people instinctively see the Internet as an entertainment source rather than an information source, as adults do. More safe and secure environments are needed that are entertaining and also educational, and which offer guided activities that are purposeful, yet not taught in a traditional academic style.

WHAT ADULTS AND YOUTH BOTH WANT — EASIER SEARCHING, COACHING AND INVOLVEMENT

"With a lot of our learners, they need a lot of human contact."

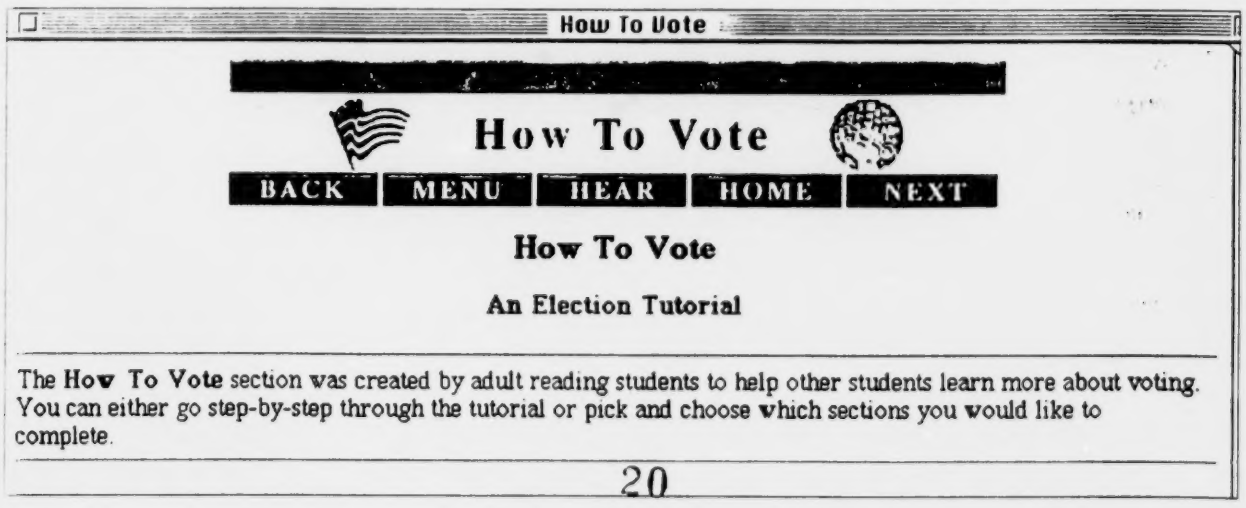
Noreen Lopez
Director, Literacy Link

Even if valuable content is developed, will it be used?

Searching is a major deterrent for adults, as it is for youth. Searching for information poses a special challenge to bilingual Internet users who try to look for information in English. The young people we spoke with would like to have this mechanism made easier.

Many underserved people obtain the information they want from family, friends, and other trusted people, so there is not a "felt need" to go to the Web or library to seek information. This lack of motivation is reinforced when people are confronted by confusing, slow, or text-heavy searches.

Our interviews further revealed that appropriate content alone is not enough to motivate underserved users to use the Net. Youth and adults alike want coaches and mentors to guide them in finding what they want on the Web, suggesting sites or activities to get started, helping use a tutorial and the like. Moreover, they want an environment where they can get literacy support or help with English if they need it. They want to be in a place where others in their community are doing the same thing and where they can count on coaching and support to build their confidence, answer their questions, and guide them in new directions. This support will give users more confidence, whether they use the Internet at home or at work. According to Douglas Schuler with the Seattle Community Network, "the circumstances through which people get the information is as important as the medium."


How To Vote
How To Vote
BACK
MENU
HEAR
HOME
NEXT
How To Vote
An Election Tutorial
The How To Vote section was created by adult reading students to help other students learn more about voting. You can either go step-by-step through the tutorial or pick and choose which sections you would like to complete.
20

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IV. ONLINE CONTENT: STATE OF THE ART

Based on what underserved users reported they want from the Internet, The Children's Partnership utilized a combination of approaches to explore what is available on the Web to meet these needs. Our research found major gaps in Internet content for underserved communities, especially sites for adults with limited-literacy skills or those looking for multilingual content; local job resources or job listings for entry-level positions; information about local low-cost housing; and cultural information at the local level. We also found a shortage of easy-to-use interface and search tools.

We utilized a combination of approaches, including compilation and assessment of content on portals used by our target groups; analysis of content on sites that key informants told us were useful; and the involvement of low-income Internet users themselves in searching for appropriate content. Although we clearly captured only a fragment of the vast Internet content now available, our core findings were corroborated by the various sources we used, including interviews with experts.

Our team searched for content in subject areas that users and experts said are important to underserved people, including education, family, finance, government, health, housing, jobs, and personal enrichment. We assessed 1,000 Web sites from portals that we selected to audit because they represent, according to users and informants we worked with, some of the best on the Web. Our findings here represent a systematic scan rather than a comprehensive mapping of the Web's content for various underserved groups. Below are the number of Web sites and percentages found for areas of interest.

CHART 4

THE STATE OF ONLINE CONTENT FOR UNDERSERVED AMERICANS

Number and percent of the 1,000 sites included in TCP's survey that addressed key content barriers:

Local Information	61	(6 percent)
Local Jobs	9	(1 percent)
Local Housing	8	(1 percent)
Limited Literacy	10	(1 percent)
Multilingual	20	(2 percent)
Cultural	5	(1 percent)

Although these figures were not designed to be projected to the Internet as a whole, it is worth noting that our findings are fairly consistent with more extensive analyses of commercial Web sites.**

FINDINGS ABOUT ONLINE CONTENT

- Generalized information (as opposed to local or community content) on topics of interest is available (26 percent) but generally not at literacy levels and in languages that underserved Americans need.
- Most of the online content we found written at a limited-literacy level was designed for the developmental needs and interests of young children, and did not provide the information needed by adults with limited-literacy skills (only 1 percent of the Web sites we found meet this need).
- Much of the multilingual content we found is in Spanish, presumably responsive to the market reality that Hispanics are the largest foreign-born minority group. Much of it, however, comes from Latin America or Spain, leaving gaps in Spanish-language content related to finding opportunities in the United States, such as obtaining a job or a high school diploma. Only 2 percent of the content found was multilingual.
- Precisely the information most often requested by the users we interviewed (e.g., local job resources or job listings for entry-level positions) proved to be the most rare and difficult to find (1 percent). Similarly, information about local low-cost housing was, with few exceptions, unavailable (1 percent).
- We did not locate significant examples of cultural information at the local level (about 1 percent), however, general cultural sites are growing for African Americans and Hispanics.
- Our review of interface design and searching tools conducted by low-income users underscored the inadequacy of prevailing tools. In our sample of 45 Internet users who participated in our Web search exercise, 80 percent said it took too long to find the information they were asked to find; 65 percent did not find the material understandable or easily organized; and 65 percent did not find the site easy to use. Difficulties with search tools for the Web point to the importance of training and support as well as better searching mechanisms.

LOCAL COMMUNITY INFORMATION

"There should be links that take me directly to neighborhood services."
Steve Snow
President, Association for Community Networks

Our research revealed much less local information than generalized information in the subject areas on which our study was focused. One positive example of the kind of local information requested in our focus groups was an activity calendar on the Web site of the city of Davis, California (http://www.city.davis.ca.us/city/parks/programs/promote/eventcal.htm). Our interviews revealed that this kind of information is particularly useful to individuals living on limited resources who may be looking for community services or for work to improve the quality of their lives.

Information about local housing rarely showed up. Because housing typically accounts for low-income families' largest expense, information about affordable rentals is especially

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important to many of the clients with whom we spoke. The Champaign County Apartment Association Web site on Prairienet, a community network (http://ccapaartments.com/), is one effort to address this need. Users can perform a search after they enter the apartment size desired (e.g., one, two, or three bedrooms) along with the price range and the area desired.

Monster.com and Apartments.com are two examples of national content destinations for housing and jobs. Jobs on Monster.com tend not to be matched to the education and skill levels of underserved users. However, these national sites offer certain sophisticated and easy-to-use features that could be adapted to low-income communities. Apartments.com, for example, provides listings that one can search by city; a user can narrow a search to specific neighborhoods by clicking either on names or on a map. However, the site does not include many underserved neighborhoods or low-rent apartments.

The few job sites we found with local listings usually did not include the kinds of jobs most needed by individuals who are not well integrated into the work force. For instance, even the excellent Web site of local job postings on the community network Charlotte's Web (http://www.charWeb.org/job/locpost.htm#jobs) does not address the need fully. Many of the jobs posted are beyond the reach of many low-skill or entry-level workers; they are technical jobs, such as those for systems engineers, production artists, and directors of student development.

We did find that community networks tend to contain more local and regional information than commercial portals; most participate in community development by helping community organizations develop a Web presence. However, the quality and the availability are very uneven within the portals we reviewed.

Even the community-based Web sites we found tend to be very limited in the local information they provide. One reason, we were told, is that some community-based agencies fear that, if they provide extensive information online, they might lose their walk-in clientele. As a consequence, they could also lose funding that attaches to the number of people who walk through their doors. A few network directors told us, for example, that certain organizations, such as employment development agencies, are reluctant to share job information for resource pages on the Web for fear of losing potential clients.

CONTENT FOR LIMITED-LITERACY READERS

"Everything on the Net is for intermediate readers."
Helmer Duverge
Program Manager, National Center for Family Literacy

Perhaps the greatest gap we found in content is material for the 44 million adults in the United States who lack functional literacy skills to perform everyday tasks. Most of the Web sites we found at this reading level were designed for the cognitive and social level of young children and do not provide the information needed by adults. Of the 1,000 sites we reviewed, we found only 10 that were appropriate for limited-literacy adults. Especially since online content can be a powerful tool for raising literacy skills,[41] we expected to find more material designed to provide a bridge to higher levels of literacy.

According to literacy expert David Rosen, the best content gives early readers as many context clues as possible using other media in addition to text.[42] These clues allow the reader to derive the meaning of the content while at the same time also building reading skills. One positive example we found was Rebecca's EZ Pages (http://www2.wgbh.org/mbcweis/ltc/ezpage/), an interactive page that allows users to click on pictures and match them to words. Literacy experts confirmed that considerably more content that helps to raise literacy levels is needed.

MULTILINGUAL CONTENT

"The Web is primarily for people who can speak good English."
Amparo Baron
ESL Teacher, University Settlement House
New York City

Multilingual content was also poorly represented on the 20 portals. Only a handful of useful Web sites (20 of the 1,000 we reviewed) had content in languages other than English that provide practical information for a more productive life in the United States. Multilingual content is particularly important for underserved Americans because it can provide the scaffolding to develop skills to thrive in American culture.

Spanish-speaking users in our groups expressed their dismay at not finding content in their language that could help them obtain local jobs and learn about local programs. Although more and more Spanish-language information is becoming available on the Web, much of the online content we reviewed is developed in Latin America or Spain, limiting its usefulness in meeting the needs of the 33 million Hispanics in the United States today.[43] The situation was the same for other non-English speakers. Although that is changing, the Web is clearly English dominated and rather inaccessible without linguistic skills. We analyzed Spanish-language content because of the large numbers of people who speak Spanish in this country.

Content destinations such as Yahoo! (http://www.yahoo.com) and the community network Charlotte's Web (http://www.charWeb.org/) include Spanish sections. Yahoo! Español, for example (http://espanol.yahoo.com/), includes extensive information on health, and it directs users to other links in Spanish (some of them, though, were not active). However, certain other subject areas on Yahoo! Español, such as education, family, government, and jobs, did not contain the same amount of useful (practical and local) information in Spanish. Our research into other portals and other places on the Web also indicated that there is some information in Spanish about health, but relatively little generalized or local information about education, family, housing, or jobs in the United States.

We also found that some sites with bilingual sections, such as Charlotte's Web, offer users hyperlinks that take them to sites with English content. Our focus group participants who spoke limited English commented on the difficulty this raised. Even if a Spanish speaker can interpret some of the

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material by using Spanish cognates, this approach allows for only limited comprehension and requires tremendous effort.

In addition to these Spanish content areas, we found a few sophisticated multilingual Web sites that offer online learning tools with extensive interactive capabilities. For example, on some sites, students can listen to English word pronunciations; they can practice grammar and receive immediate feedback. On others, they can also practice writing skills. These approaches demonstrate the enormous potential of interactive media to help underserved Americans improve their skills and life prospects.

CULTURAL CONTENT

"Low-income people think they're not legitimate information providers."

Douglas Schuler
Advisor, Seattle Community Network

"There's a cultural bias in content."

David Hughes
Partner, Old Colorado City Communications

Although local cultural content was extremely limited, we did find a few very strong examples of local content where users are expressing and celebrating their local culture. However, these represented only 1 percent of the total of sites analyzed. By contrast, cultural content of a generalized rather than a local nature is becoming more prevalent on the Web. For instance, the Web is now hosting a number of portals for African Americans as well as Latinos.

Following are some cultural (or ethnic) portals that offer features now common on many popular portals; some are quite advanced. Their features generally include editorial content; services such as email, chat, and searchable areas; personal Web publishing; and online communities.

- African Americans: BET.com, the Black World Today
- Hispanics: StarMedia Networks, Yupi.com
- Asians: A-Space, Click2Asia

These sites are only a sampling of the many content providers now targeting ethnic and cultural markets, but these early players demonstrate the strengths as well as potential weaknesses in efforts to reach ethnic audiences. Many providers are productive at communicating and sharing general cultural affinities, thereby expanding them. Others are also good intermediaries to bring information from abroad. However, while most build important bonds that can tie members of ethnic groups together, it is often difficult to do so without ignoring some of what makes certain ethnic cultures unique.

The trend toward homogenizing and ignoring differences, dictated by a desire to build market share, shuts out to some extent the distinctive essences that give vitality to a culture. For instance, A-Space.com is working to bring together the Asian world under one umbrella, a difficult challenge because of the widely varying heritages among Asian Americans. Yet it is precisely these distinctive differences, which are often lost in big portals, that can provide great impetus for ethnic groups to actually go to the online world. These unique traits are also what can bring people into a community access center to develop culturally relevant information together.

NAVIGATING THE INTERNET EASILY

We found that even when content destinations have appropriate information to offer, the information is often still out of reach to users because it is so difficult or confusing to find. Of the low-income users who performed the Web search, 80 percent said that it took too long to find the information they were asked to find on portals, 15 percent said it took an average amount of time, and no one found it quickly. In another interesting finding, 65 percent did not find layout understandable, while 25 percent found it adequately organized and intuitive. The majority of these users had trouble obtaining the information and — even more significant — 65 percent did not find the sites easy to use. Following is a sampling of reactions from the people with whom we spoke:

"These sites seem very dry at best, and most of the time, I didn't see the logic of how most of the contents were organized. I think these sites can benefit from more simplistic layouts, brighter colors, more images and graphical icons to highlight or point information out."

Henry, age 25

"Topics were vague; [portal] should be more basic. They should have a tech support number."

Dontray, age 17

"If I lived in [this town], I would not find this a valuable site to learn about my community. Not enough local links. The links really lead nowhere. And the site is BORING..."

Suzanne, age 27

"Many times the information was not in a logical place and you had to do/go [sic] numerous places."

Erica, age 27

These findings are similar to the conclusions of an important study authored by Nicholas Burbules and Thomas Callister, who argue that real Internet access has to do with more than access to hardware. It involves — among other variables — being able to interpret and navigate effectively through complex online environments. The authors make the case that information does not have value and the user does not have real access if s/he can't get what s/he wants."

In sum, the problem with search tools is twofold: most do not accommodate the needs of underserved users, and they require a great deal of sophistication and training. However, many users we interviewed are very interested in learning tips for faster and more effective searching and recognized that it takes time and coaching to learn the skills that make online information more accessible.

V. BUILDING BLOCKS FOR THE FUTURE

While content currently on the Web generally does not meet the needs of underserved Americans, we did find positive examples of Web content, along with content development activities that provide useful "building blocks" for the future. They include Web site products and tools as well as more extensive initiatives. We also talked to people about what would be required to move some of these building blocks to scale. Because this field is so young, most of the initiatives we spotlight are relatively new, while others are still on the drawing board.

Building blocks include Web site products and tools as well as more extensive initiatives. This chapter describes some of the best efforts we found; a more complete showcase of good content destinations can be found in Appendix E. What follows should be viewed as a sampling rather than a comprehensive inventory. Inclusion of these initiatives does not represent an endorsement, but an attempt to analyze productive directions for change.

We looked for promising practices in the following categories:

- Content in subject areas of relevance to underserved users;
- Efforts to break new ground in overcoming barriers of literacy, language, and culture;
- Coaching, mentoring, and involving community residents in content development;
- Organizing content in a manner that makes it easy to use;
- Using technology tools to better reach the underserved.

RELEVANT WEB CONTENT

The following Web sites are good examples of practical information that helps people with their everyday needs, including child care, education, jobs, and transportation:

- The education category of the Internet Resources page of the Brooklyn Public Library provides a valuable source of local educational activities (http://www.brooklynpubliclibrary.org/refernce/refernce.htm#Education). A user can learn about GED test preparation classes taking place throughout Brooklyn, including the address and telephone number of the organization offering the course as well as class times. The site also contains information for Adult Basic Education Programs, assisting a user to enroll in these types of programs. A complete reference such as this one offers clients choices they might not otherwise know exist.
- On Charlotte's Web (http://www.charWeb.org/), residents of Charlotte, North Carolina, can learn about public transportation by clicking on a link on the home page. The public transportation information is easy to find. The page lists the names of the transit systems near the top, making the times and routes only one more click away.
- Welcome to Neighborhood Link's All About Work (http://www.nhlink.net/employme/index.htm) provides information for jobs in Cleveland, Ohio, and answers the following questions: How can I find a job? Where can I find a job? Who can help me find a job? What if I need training or a GED? The site also includes a job vacancy list. The site is relatively simple to navigate because of the simple language and questions and because of the design of the page.
- East Bay Works (http://www.eastbayworks.org/) is a free employment-training site for the East Bay Area outside San Francisco. The site allows users to create a resume online and view job listings for different counties that, in turn, allows them to determine what's most convenient for them in terms of transportation. Users can also watch a video that explains the entire service, step by step, and the video is available in a variety of modem speeds: 28.8, 56K, ISDN, T1.
- A Web site on the network Prairienet (http://www.aces.uiuc.edu/~CCRScare/) offers information about child-care resources for families. The ChildCare Resource Service page helps families in six counties in Illinois to find child care through a telephone service staffed by child-care resource specialists. Parents can receive help developing a child-care search action plan and obtaining child-care subsidy support, if they qualify. Prairienet has also been collaborating with agencies to create the area's most comprehensive online human services guide (http://www.helpsource.org). On this resource, users have access to a database of 1,000 human services in the six counties covered by the community network.
- The Education Center (http://bcn.boulder.co.us/univ_school/center.html) on the Boulder Community Network home page includes local education programs, two online student newspapers, and extracurricular activities. Students, parents, and other adults interested in education can find many links to local Web sites for further information.
- Community calendars are common on networks. The Taos Community Calendar on the La Plaza Telecommunity site (http://www.laplaza.org/cc/) has a particularly user-friendly interface. The user can read a few short sentences and search the calendar by months and events. In addition to events of interest to families, the calendar lists local cultural and political information.

Some of the community networks in the group of portals analyzed for this Audit consist of collaborations and partnerships with libraries, universities, schools, community-based organizations, and private business. The more successful ones derive their funding from diverse sources, such as federal funds, private industry, and social venture capital investments.

Brooklyn Knowledge Network

Brooklyn is building an online network of community-based organizations, libraries, schools, and government agencies. The advanced communications infrastructure at the Brooklyn Public Library will provide high-speed connections to all participating organizations at reduced fees. The network will have the capability to offer audio and video transmission, video multicasting, and voice services to its constituents.

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The network will leverage resources and electronic databases. It will develop training and support programs to encourage organizations to participate and to assist them in distributing their information electronically to their clients. This citywide collaboration pools together resources and expands access to the advanced technology in place at the library, paving the way for more sophisticated broadband connectivity and services. It also builds content development capacity in the community through programs that teach and support content development efforts. For example, Brooklynx, a project of Brooklyn Information and Culture (within city government) and a network member, trains representatives of community-based groups to build Web sites and then hosts them on the highly designed Brooklynx Web site (http://www.brooklynx.org/).

Davis Community Network
Davis Community Network (DCN) in Davis, California, (http://www.dcn.davis.ca.us/) refers to itself as a "smart community" and is part of the "smart community" movement. The network has contractual agreements with a number of community organizations, city and county government, and the Davis Unified School District (http://www.dcn.davis.ca.us/organizations/). These entities make financial contributions to DCN, and they work together to plan the network infrastructure. As the main portal for the city of Davis, the site receives 100,000 hits per week from the city, county, and surrounding region. Core contents of the DCN Web site include access to tools such as forums, discussions, GIS (Geographic Information Systems) mapping, and online databases.

Missouri Express
Missouri Express (http://www.more.net/projects/mo_express/), a statewide community information network, "strives to share public information with Missouri citizens and to provide a powerful community and economic development tool to showcase the community to the world." The network unites the efforts of school districts, libraries, local government, and other agencies to support public access to information. Furthermore, the network builds upon the efforts of local information providers already online, while assisting other information-providing organizations to get on the Internet.

The Community Connection Web page on Missouri Express (http://www.communityconnection.org/cc_1_1/background.html) offers a database with information from thousands of community-based health, education, and human service resources. It provides basic service information (e.g., types of services, staffing, locations and phone numbers) to the public. Libraries, schools, and other public resources distribute this content.

Prairienet
Prairienet (http://www.prairienet.org/online/) is part of the Community Networking Initiative (CNI) at the University of Illinois, Urbana-Champaign. Prairienet is seen as the community repository of information. In addition, the network has trained more than 500 low-income individuals in computer skills and has given them free computers and Prairienet accounts after they completed the course. The network has also worked with many community organizations to put information about them online, resulting in more than 700 groups being included on the Prairienet Web site. More of these sites now focus on providing information directly to low-income users. In addition, CNI has collaborated with local health and human service organizations to develop comprehensive Web-based information and referral directories and other cross-institutional information resources.

OVERCOMING LITERACY, LANGUAGE AND CULTURAL BARRIERS

For Limited-Literacy Users

The Web sites described below are excellent examples of products that offer rich activities to improve literacy skills using a variety of media; they also provide "life information."

- The Voter Involvement Project is one of the few examples we found of online information designed for individuals who are at a beginning reading level. The content on the "How to Vote" section of the "Key to Community: Voter Involvement Project" (http//www.otan.dni.us/cdlp/vip/welcome.html) was developed by adult reading students to help other students learn more about voting. One can either go step by step through the tutorial or pick and choose sections to complete. The user can derive the meaning of the simple text from sketches and by listening to a reading of it, when the "HEAR" button on the menu is pressed. The menu itself is very simple, made up of five buttons and five words. The sentences are also spread out across the page, above and under the sketches.

- Another Web site, Rebecca's EZ Pages (http://www2.wgbh.org/mbcweis/ltc/ezpage/), follows similar design ideas but creates more sophisticated online reading exercises. One of the exercises, titled "What the Landlord Must Do," teaches students basic terminology about housing and landlord responsibilities. Then, it provides a written exercise in which the student explains the responsibilities and also describes the functions of certain parts of the house. The Web site gives the student a list of words that link to pictures about parts of a house. Or the user can click on different parts of a sketch of a house, which then show the appropriate word. The interaction between text and pictures, along with the written exercise, allows students to go back and forth between the pictures and the words as much as needed to succeed at the tasks.

- LINCS (http://www.nifl.gov/lincs) is the adult literacy community's gateway to the world of adult education and literacy resources on the Internet. LINCS features multimedia curricula developed by practitioners, special collections on major literacy topics, the latest literacy-related research and statistics, and opportunities for communication with colleagues directly and through online discussion.

- Western/Pacific LINCS (http://literacynet.org/lincs/), one of the LINCS regional hubs in partnership with the CNN office in San Francisco, offers a Web site for adults who are learning to read. It also uses multimedia to give the reader clues that help decipher textual meaning. A user can read a story in full, abridged, or in outline form.

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What is particularly interesting about this site is that, as part of its "Learning Resources," the students can listen to the story or watch it as a video. Afterward, they complete a series of exercises testing vocabulary and reading comprehension, and then they write their own ending for the story. The learning experience involves many different components to assist an early reader as much as possible.

- Literacy Link (http://www.pbs.org/literacy/) is a very strong example of content on the Internet for early readers. A joint venture between PBS, the National Center on Adult Literacy, KET (The Kentucky Network), and Kentucky's Department of Education, the Web site has an instructional area geared to pre-GED students who lack basic reading skills and focuses on workplace skills. The director of Literacy Link, Noreen Lopez, explains: "The aim is to improve reading, math, and communication in a business context." Full instructional lesson units are built around video clips. In a unit about planning for a career, for instance, the user clicks on a link to perform an "anchor activity" that involves watching a video program, thus setting a context for the activity. Next, the user can do corresponding work in an offline workbook as well as online learning activities (e.g., taking inventory of areas that interest her/him). Each unit ends with a "closure activity" to help the learner reflect on what s/he has learned. The content was developed with strong input from educators and users and has high production value.

Multilingual Content

As with literacy content, the best sites help students learn better English skills through carefully designed practice sites. We also found some sites with important information about government residency requirements, Social Security, and health. We did not uncover sites that are as sophisticated as Literacy Link to educate this population.

- The DEIL/IEI Lingua Center (http://deil.lang.uiuc.edu/Web.pages/esl.html) offers many resources for online ESL practice. It contains grammar, listening, and speaking exercises.
- English Practice.com (http://www.englishpractice.com/), a free service, offers thousands of lessons, with new ones added every week. The user can listen to explanations and directions before using the site. In the grammar section, users can practice verbs, prepositions, and vocabulary, and they can complete grammar tests. All of these are interactive multiple-choice exercises with a program that provides correct answers. Students can also play crossword puzzles, practice reading, and learn business vocabulary in a business course.
- NOAH: New York Online Access to Health (http://noah.cuny.edu/) is a bilingual site where Spanish speakers can find national and local health information through word searches. The information is also available in English, which can be useful in developing English skills, while providing important health information. The general section contains information about diseases and general physical well-being, while the local section provides references for services in New York, such as hospitals and a directory of services for children. The combination of national, local, and bilingual subject on this site is very useful.
- English-Spanish Glossary of Social Security Administration Terminology (http://ssa.gov/espanol/glossintro.html) is a government information Web site that distributes vital Social Security information to Spanish-speaking Americans.
- Immigration-USA.com (http://www.immigration-usa.com/spanish.html) contains topics with vital information for immigrants. Spanish-speaking immigrants can read in their native language about visa eligibility, residence cards, and what to do if a card is lost. The site also provides a comprehensive list of forms required.
- In Randall's ESL Cyber Listening Lab (http://www.esl-lab.com/), students can listen to general quizzes, quizzes for academic purposes, long conversations, and short listening exercises; the user can choose easy, medium, or difficult levels for the exercises.
- Another useful online tool is the AltaVista Translator, a tool provided by the search engine. A beginning speaker can enter English words or phrases and receive a Spanish translation. This allows new speakers to read and comprehend written material in English, an important element in learning to speak with fluency. However, this program lacks the sophistication to do some of the more complex translations that commercial software can do.
- Through other resources, such as healthfinder.gov, one can find many other Spanish or bilingual Web sites.

Culture

The cultural sites we found that address the needs of underserved users are bringing together individuals to express cultural attributes using technology. Technology is enabling conversations about local interests, as in the case of Harlem Live, and about traditions that have been handed down over several generations, as in the case of La Plaza Telecommunity's Open Studio. In addition, by building cultural Web sites, participants in these programs learn technical skills that they apply to develop other content, or which encourage them to increase their skill base and become even better producers. Often this progress can have positive impact, as it builds self-confidence and expands areas of interests.

- Harlem Live (http://www.harlemlive.org/) is Harlem's online publication by teens. Approximately 60 students from public high schools located in the Bronx, Brooklyn, and Manhattan develop and maintain this award-winning interactive journal about life issues for teenagers of color. On the Web site, one can read about events and happenings, poetry and memoirs, and view a gallery of photos. The aim of the site is to empower leaders to be caretakers of tomorrow by building a network of information from within the community. Harlem Live has been recognized nationally for its contributions to the online world of youth of color, receiving praise from international as well as national leaders.
- La Plaza Telecommunity (http://www.laplaza.org/) is partnering with groups such as Artesanos de Questa and

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La Jicarita Enterprise Community to provide training, access and support in information technology to artists in Taos County, New Mexico. The program is instructing local artists in how to post artwork online, disseminate cultural information through the Web, and link with arts communities across the country and globally. Some of these artists are seeing age-old artisan traditions distributed more broadly than ever before possible and, in the future, envision selling their art online. This interchange is creating community connections by building productive alliances within, and is also creating new forums for the art and culture of Taos. The effort is part of a larger initiative funded by the Benton Foundation's Open Studio project.

COACHING, MENTORING, AND INVOLVING UNDERSERVED COMMUNITIES: THE ROLE OF COMMUNITY TECHNOLOGY CENTERS

Our interviews and focus groups made clear why underserved users need to be involved in the development of content for their communities. Inclusion helps ensure that online content incorporates what the community wants and will use, that content acknowledges residents' methods of acquiring information, and that the look and feel of the content works with the user's literacy and linguistic levels. Equally important, involvement of the community builds a group of users who sees the Web as a space that reflects their culture and values and is useful. Finally, it enables the community to benefit financially from economic development that may occur from technology resources in the community.

Community technology centers, neighborhood centers that provide technology skills training and open access to the community, have begun to prove their value as local sources of coaching and mentoring that promote involvement of low-income residents in technology and content development. Evaluations of the California-based Computers in Our Future project have shown that these 11 centers are reaching groups who have normally been intimidated by technology, and people who have been difficult to attract to the computer-using world. Fully 81 percent of users are people of color, 56 percent are under 24 years old, and over half of the adult users come to the center seeking employment.[15]

Similarly, affiliates of the Community Technology Network have been found by evaluators to share the following characteristics:

- Have a positive impact on participants' educational goals and experiences;
- Foster a sense of personal effectiveness;
- Be a valuable resource for obtaining job skills and learning about employment opportunities;
- Be an important resource for the traditionally underserved, including women and girls, people of all ages, and members of racial or ethnic minorities; and
- Encourage community building.[16]

Access Centers for Children and Youth

Computer Clubhouse

The Computer Clubhouse in Boston brings together a network of computer centers with the goal of teaching participants to express themselves fluently with new technology. Unlike many other centers where the main goal is to teach youth basic computer techniques and basic computer applications, the Clubhouse focuses on creating "fluency" among young people: the ability to use the computer as a medium for expression (beyond word processing). In this learning community, young people and mentors work together on projects, using new technologies to explore and experiment in new ways. For example, they use tiny computers (embedded inside LEGO bricks), motors, and sensors. Their Web site showcases some of these sophisticated projects (http://www.computerclubhouse.org/). Elements that help make the Clubhouse work for kids include mentors and a well-planned curriculum that was developed with researchers at the MIT Media Lab, who also created the microcomputers used in the experimental scientific projects.

Street-Level Youth Media

At Street-Level in Chicago, youth learn video design and digital video production techniques. The Web site (http://streetlevel.iit.edu/) is an online cultural space for Chicago's inner-city youth. It contains a "multimedia block party," which celebrates Web sites created by participants, and reports about the Chiapas Youth Media Project in which youth from Street-Level went to Chiapas to share video techniques with the residents of this Mexican village. At present, the youth are building an oral history (broadband) site with material from video installations of the past four years.

Imagination Place!

EDC's Center for Children and Technology is collaborating with Libraries for the Future to implement an interactive online design space for girls ages 8 to 12 called "Imagination Place!" Its goal is to equip girls to use technology and understand the process of building technology so they learn to be creators and engineers. Imagination Place! is allowing girls to animate objects by using powerful Internet-based multimedia tools.

In addition to the online environment, many offline activities are planned with mentors and instructors, recognizing that the success of a project like this relies on offline and informal educators. Mentors meet with participants in afterschool programs in libraries in several U.S. cities. They also communicate by e-mail, work on design-based projects and solve puzzles to learn about the design of everyday objects. Because Imagination Place!'s activities are designed to be fun and challenging, they hold the potential to provide more purposeful guided activities.

Access Centers for Adults

The Gateways Community Voice

The Gateways Community Voice in New York City (part of the Gateways Technology Grant funded by the US Department of Education) supports a coalition of settlement house staff, community members, parents, students, and teachers who work together to develop Web-based content

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relevant to the study of immigration and emigration at community centers. During one of our focus groups, we observed a Web-design class comprising recent immigrants between 16 and 23 years old. Poems written in an ESL class made up the content of their Web pages. One of the most exciting parts of the Gateways Community Voice Web page, called Life Stories, contains audio files of immigrants recounting stories of their journey to the United States. Project staff are working with grade-school teachers to integrate this content into the fifth-grade history curriculum in order to teach the subject more authentically.

The Technology Community at Villa Victoria
The community center at this low-income housing facility in Boston is a community of very actively involved Hispanics, who are coming together in part around cultural interests and concerns and who are planning the computer lab and the content. Villa Victoria has partnerships with the city government and the largest ISP in the area, Lycos (one of the major players in the national portal market). An intranet will be built for all the housing units, and plans call for installing a computer and printer in every home. There is a technology center at the facility, which is developing a Neighborhood Clubhouse with Lycos. A Clubhouse is a password-protected environment for residents that hosts online resources useful to the community. The Clubhouse director and community representatives work very closely to determine the content. Parents can use the Clubhouse to communicate with teachers, other residents, and the city government or to publish information in Spanish.

ORGANIZING GOOD CONTENT AND MAKING IT EASY TO USE

We were able to find some portals that organized a great deal of material by subject matter in forms that were easier than most to use. Portals such as Yahoo!, Snap.com, and those created by the Brooklyn Public Library (http://www.brooklynpubliclibrary.org/refernce/refernce.htm) and the Public Libraries of Saginaw, Michigan (http://www.saginaw.lib.mi.us/), contain subject categories organized by people who catalog and index each subject. These staffing resources allow the portals to offer more complete and high-quality information in each subject area. Commercial portals now allocate resources to aggregate and create content in order to attract and keep users in their sites, having evolved from their original role as browsers that pointed people out to the Web into online channels that aim to meet all information needs. Some community networks also have well-developed subject categories; however, many have not and must rely on volunteers, or limited staff, for content editing.

The Community Networking Initiative at the University of Michigan School of Information produces The Community Connector Web site (http://www.si.umich.edu/Community/). The Web site provides links to an annotated list of resources useful to people gathering community-building information, and it labels as "best practices" those that are successful at reaching out to communities. Best practices are either national or local, or a combination of the two. A health site from Charlotte's Web considered outstanding, for example, features Community/Social Service Agencies, Charlotte's Web AIDS Project, Family and Children Services, and national information about cancer. Practitioners in the community networking field who use the site find it a valuable general resource because of the aggregation work it performs.

USING TECHNOLOGY TOOLS TO BETTER REACH THE UNDERSERVED

Though most are still in their infancy, we were able to find some multimedia, search, and translation tools that hold the potential to make electronic information more accessible to limited-literacy and bilingual users. It is particularly important to develop technologies that facilitate access to all types of content, in order to prevent "dumbing down" existing content, and to extend the reach of high-quality content now available. In fact, many of the users we interviewed want to be able to use the "deep," multilayered content available on the Web.

Educational technology research and design initiatives for disabled users offer some direction to design products that can help to make the Web a more accessible environment. For example, projects at the Center for Applied Special Technology (CAST) (http://www.cast.org/) address limitations with search and reading support in a Web environment. CAST is an organization that incorporates widely accepted tools that make technology available to disabled users (using so-called universal design principles) at the beginning of the product design process. Redesigning the product later is often much more difficult, if not impossible. For instance, if application program interface (API) standards are not included initially in an application, assistance software may not work with that application. For these reasons, API standards should be incorporated early on in the development of software and other content for limited-literacy and bilingual people.[17]

One promising approach for limited-literacy users is a reading assistance software program, The Web Trekker, that helps with identifying key words, spelling, and narrowing Web searches. In this multimedia environment, users also receive support in "reading" information from the Web and navigation through text-to-speech support and synchronized highlighting. A similar piece of software, Responsive Text by Lexicon Systems (http://www.lexiconsys.com/), helps to teach basic skills and content relevant to today's workplace to adults in adult education agencies. The program helps the user comprehend text with audio assistance in reading and vocabulary.

Commercial translation and search tools also show promise for assisting this target population. Speech recognition is starting to be built into some commercial products. For instance, software manufacturer Lernout & Harpie recently unveiled the L&H "Translator Online," a Web-based, e-commerce translation device. Other players, such as Transparent Language and Conversa, have also developed products that incorporate speech into their applications.[18] The search engine AltaVista (mentioned earlier) offers full text translation, capable of translating Web site passages originally in English into Spanish. Software created by Babylon.com allows a user to highlight a portion of text and receive an immediate translation. In our focus groups, some adults with

limited-literacy skills found the natural language search engine Ask Jeeves (http://www.askjeeves.com/) to be useful.

In addition to encouraging development of software tools that facilitate reading and locating information, it is also crucial that industry standards now being developed for broadband content address these points, since interactive (broadband) content is a crucial part of the digital future. Many important conversations are now under way that should take into account the special needs of this target group. The International Organization for Standardization (http://drogo.cselt.stet.it/mpeg/standards/mpeg-4/mpeg-4.htm), for example, released MPEG-4 (Motion Pictures Experts Group) standards[49] in October 1999 for interactive video on the Web. In the summer of 1999, the Advanced Television Enhancement Forum (http://www.microsoft.com/atvef/) issued criteria to guide the convergence of Internet and television programming.

These and other efforts to define the emerging broadband arena offer tremendous new opportunities to serve this population more effectively. The descriptive text in closed captioning used by those with hearing disabilities is one example. This technology can also be used for searching and translating so that people who speak a language other than English can search video and audio to find what interests them and then translate it into their native languages. As broadband standards are developed, they should also enable two-way communication so that limited-literacy or limited-English users can interact with the information and produce content themselves.

In this period of intense research and development (R&D) in the Internet industry, and as content migrates to various information devices, now is the time to develop the tools and guidelines that will make it easier for everyone to use the Internet. History has shown that striving to make technologies accessible to specific constituencies leads to advances that benefit everyone. Development of a "talking book" for the blind, for example, led to the cassette tape,[50] and research on communications devices for the deaf led to the development of the telephone.[51]

FORGING PUBLIC/PRIVATE PARTNERSHIPS TO GET THE JOB DONE

Web content is heavily driven by the private marketplace. Many of the building blocks presented here show that there are tremendous opportunities for the private and public sectors to join forces to extend online content development to underserved groups and individuals. While the market can be counted on to produce some of the desired content, special partnerships must be forged to develop local, community-based information and Web products for limited-literacy and bilingual users.

Private-public partnerships that use market-based concepts to design social products and services have a long history and are important foundations to build upon. *Unleashing New Resources and Entrepreneurship for the Common Good: A Scan, Synthesis, and Scenario for Action*, a 1999 report by Tom Reis with support from the W. K. Kellogg Foundation, presents a conceptual model and a plan for how to build philanthropic social investment to solve social ills using market-driven and venture capital concepts.

The report identifies the following as necessary elements to integrate business ideas into the service of the common good: knowledge management, human capacity development, and deal making. The initiatives and Web products discussed below exhibit some of these components and are solid building blocks for developing community-generated online content.

ACENet
http://www.seorf.ohiou.edu/~xx001/

The Appalachian Center for Economic Networks is a community-based economic development organization located in rural southeastern Ohio that jointly administers the Southeastern Ohio Regional Free-net, a community-based network committed to providing low-cost access to information and communication resources. ACENet's programs employ market-based principles to build successful businesses that help people move out of poverty. They work with 75 specialty food businesses to develop niche markets for food products. Many of these have been incubated at ACENet with social venture funding. In addition, they provide market and trend information for various types of businesses. Approximately one third of their funding is generated by ACENet.

CitySoft.com
http://www.citysoft.com/

CitySoft is a high-growth Internet company that is expanding with a pool of talented employees recruited in lower-income neighborhoods. Many of its employees are graduates of training programs for underserved constituencies. CitySoft provides Web design services to a variety of private clients, such as BankBoston, Reebok, Polaroid, and Sapient, from which they generate their revenue. In the process, CitySoft is proving that high-tech employers do not need to look abroad for employees because talent exists here. In America's inner cities, employers are recruiting and training developers, administrators, managers, and entrepreneurs.

Grassroots.com
http://www.grassroots.com

This site is a political action network with a commitment to improving democracy. It helps candidates and voters communicate, increases political participation, and empowers grass-roots movements while still generating a profit. This revenue comes from charging candidates for Web hosting, advertising, and offering fund-raising services to local campaigns with limited budget. With easy-to-use tools and content to generate activism at the local level, Grassroots is a commercial venture serving a public mission.

PowerUP & IT Training Programs
http://powerup.org/

The mission of PowerUp is to give underserved youth access to technology and guidance. The program aims to offer teens mentorship and direction to help them succeed in the digital age. More than a dozen nonprofit organizations, major corporations, and federal agencies are involved in this initiative. Partnerships with various public and private insti-

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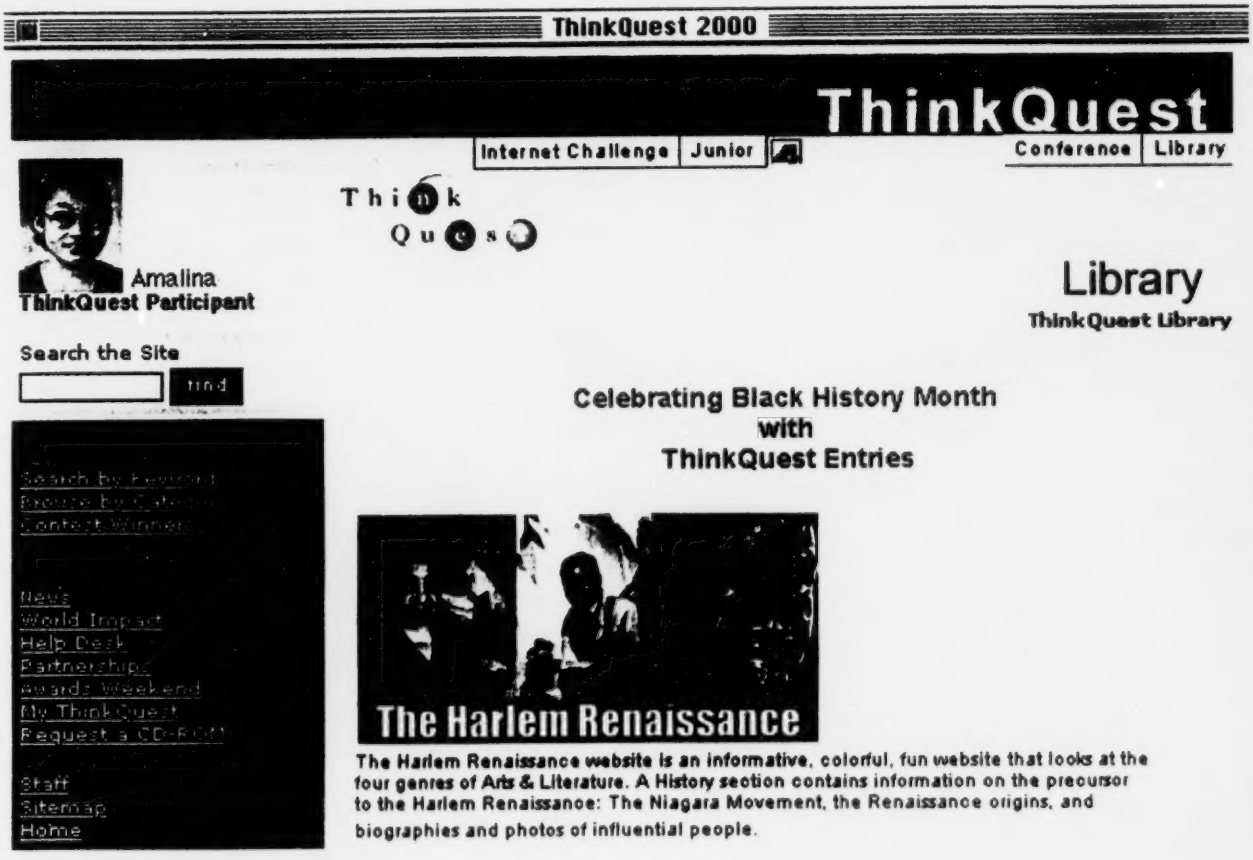
tutions, such as schools and community centers around the country, will allow PowerUp to reach thousands of youth. Partners will provide technology, funding, trained personnel, in-kind support, and other resources. Although not primarily involved in the generation of content or content skills, Power Up Online is being designed to house the content for the program, which will be delivered through youth centers across the country.



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VI. CREATING A POSITIVE INFORMATION SOCIETY FOR AMERICAN FAMILIES: NEXT STEPS & RECOMMENDATIONS

This Audit provides a clear picture of what underserved communities want and need from the online world. That picture can help guide the information age in ways that benefit communities and improve the quality of life for all Americans. In addition, the participation of the underserved can greatly enrich our collective culture. Ignoring the voice and vision of underserved communities will greatly limit the ability of this potent interactive media to function as a tool that strengthens local communities.

Five key characteristics. Our research yielded five key characteristics that define a positive information society. These form a framework for our recommendations for action.

A positive information society

1. Is community-driven and meets real community needs. Activities should build on existing organizations, resources, and needs in the community.

2. Overcomes major content barriers facing the underserved. Most critical are those related to local needs, literacy level, language, and culture.

3. Provides people to help. Offers training and technical support so that, like businesses and more affluent Americans, underserved communities have the support required to plan, design, produce, and use content that best serves their interests.

4. Offers online content that is easy to use. Content is aggregated, organized, and searchable in a way that all Americans, especially the underserved, can easily find what they want.

5. Is sustainable. Financial resources are available to keep these information resources current so that content can move and change as the community changes and so that necessary equipment and high-speed connections can be maintained.

Two Prerequisites

There are two prerequisites to our recommendations. First, many of the positive online activities this Audit chronicles require high-quality hardware, software, and high-speed connections, which most underserved communities do not have. While a great deal can be accomplished with fairly basic infrastructure, all underserved communities need centers of excellence where the advanced applications are possible. Our findings and recommendations can help inform the efforts by U.S. companies, the U.S. Department of Commerce, the U.S. Department of Education, some foundations, and others to solve this critical infrastructure challenge.

Second, all interested parties must sustain their advocacy efforts to make sure the powerful interactive capabilities of the Internet are actually used to address real community problems. If the positive scenarios described in this Audit are not persistently promoted by civic leaders, elected officials, and corporate leaders alike, the potential of the new media to achieve genuine social improvement will be lost.

RECOMMENDATIONS

Because the new "two-way" interactive media are so fundamentally different from traditional "one-way" media, they require altogether new partnerships to realize their potential for community building. Most of the actions we recommend require working alliances of underserved communities, corporate leaders, philanthropy, and government. While much of the activity and leadership on this issue appropriately rests with the private marketplace, government and philanthropy also have critical roles to play in research and development, by establishing basic principles and regulation within which the private sector can flourish, and providing certain kinds of financing and incentives.

Based on our findings, we recommend three strategies to promote a positive information society that includes the 20 percent of Americans who are underserved today:

1. Start with what can be done immediately, including steps every local community can take. Enough is known to act now, and there is no time to wait.

2. Put in place a national strategy that leads and supports communities as they use the new online tools to tackle real community concerns, and ensure that no Americans are left out of the Information Age benefits.

3. Carry out the research and development (R&D) that creates the knowledge base for community and national efforts to be effective.

I. GETTING STARTED TODAY

Find Out What Your Community Values: Local communities across the country can begin to map what information residents find most useful, how they want it organized, and how the Internet can help residents use education, employment, recreational, and other opportunities. In underserved communities, trusted places like community or religious centers and many others have a leadership role to play. One good example is the Neighborhood Technology Resource Center at Chicago's Northwest Tower Apartments (http:www.northwest.com), where the unemployment rate is 89 percent and where 95 percent of the residents are African American. Residents are involved in building a Neighborhood Network that includes local businesses, such as salons and dollar stores. The project collects information on the residents' interests and skills (which are as diverse as baby sitting and sewing) as well as local jobs and then aggregates the information on a Web site. In this way, the project is beginning to build an employment resource network similar in concept to monster.com but that emphasizes the many different and unique "assets" available in the community.

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Build New Online Community Resources: Communities can begin to build online resources based on residents' guidance. One model is Brooklynx, a nonprofit online community network designed by and for the residents in each neighborhood of Brooklyn. Through Brooklynx, residents can click on a map that includes their neighborhood and find everything from the community calendar of events to technology courses taught in the neighborhood, to family service organizations and cultural exhibitions (see www.bkny.net/neighborhoods/).

Enlist Local Talent: Communities can begin tapping readily available resources to support them as they build these online resources. For example, enlisting the help of technology, savvy teenagers identified by the local high school provides the double benefit of Web expertise for the community and practical work experience for youth. Youth offer tremendous untapped expertise. Communities can also ask local businesses for a "loaned tech expert," an experienced technology professional who can be detailed to their project through a paid leave or sabbatical from the employer.

Aggregate and Market Available Good Content: Using the good content identified through this report, interested parties can gather and organize what exists so that community organizations can use it more easily. To make this resource available most efficiently, we recommend that a small consortium of groups that represent underserved constituencies work together to assemble and maintain this resource. Blue Web'n, an aggregator site for education and training related materials, is one good example (www.kn.pacbell.com/wired/bluewebn/).

Use Search, Translation, and Multimedia Tools to Reach the Underserved: The corporate sector should take the lead in deploying existing multimedia tools to make online content more usable by Americans with limited literacy and language skills. Specifically, more sophisticated translation tools should be made available to convert text from English into other languages. Users should have access to them in the public domain. In addition, voice capability that can read aloud any text that a user highlights should be made a standard feature of online content.

Direct Available Government Resources to Groups That Can Develop Content for Underserved Communities: Federal and state government should use existing grant programs for technology to encourage and support underserved communities that can develop content. Today, many government grant programs either do not support content development at all or, like the Commerce Department's Technology Opportunities Program, do not support projects whose primary purpose is content development. A great deal of valuable new content could be developed if even two of the major federal initiatives focused on underserved Americans — the Technology Opportunities Program and the Department of Education's Community Technology Center's program — devoted a quarter of their $45 million budget to content development. States should also consider providing incentives for the creation of content that appeals to underserved groups, as has been recommended for California by the California Research Bureau.[2]

Offer Essential Public Information at a Limited-Literacy Reading Level: Government, schools, and libraries should customize their content for limited-literacy users. For example, the government programs that are designed to benefit low-income families who sometimes have limited-literacy skills should provide information about these programs on Web sites at a limited literacy reading level. There should be an automatic default to this simple interface and text, with an option for more advanced readers and Internet users to move to the more complex version. Funding should be available in government budgets for this purpose. Similarly, this information should also be translated into the languages most prevalent among program clients.

II. CARRYING OUT A NATIONAL STRATEGY TO ADDRESS THE UNDERSERVED

Convene an Online Content Strategy Group: The philanthropic sector should convene leaders from the corporate sector, underserved communities, and government to determine how best to place the content issue on the national agenda. In addition, this strategy group should establish nationwide goals, measurable targets, and key action steps for creating a positive information society.

Build Community Information Portals: Private industry should work with underserved communities to develop and share a model for a community information portal. The model would be patterned on private industry's "enterprise information portals," which offer clients a one-stop, interactive online center to, for example, learn about cars, buy a car, or talk to other car owners, and which also allow the employees of car companies to collaborate and communicate more efficiently with business partners. The community information portal should have certain features that are standard across communities but also offer extensive flexibility so that each community can develop a portal that has the best fit.

Industry leaders should come together to make tools (and technical support) available that enable local communities to add new functions to existing Web sites or create brand new ones that can gather and organize information of value to residents —whether bus routes and schedules, information on the nearest child-care center, online tutorials, or help writing a resume. Portals should offer a variety of features, including classifieds, community calendar, neighborhood services, discussion, chat, search, Web links, and an e-commerce mall for the neighborhood or area. These tools would enable residents in underserved communities to organize community food co-ops, safety patrols, or neighborhood festivals. Similarly, users could find tools to become producers of goods or services and start their own e-business. An exciting preview of the potential are the tools offered by WeGo.com (http://www.wego.com/index.html).

Provide Community-Based IT (Information Technology) Preparation and Training in Underserved Communities: Private philanthropy, the corporate sector, and government should expand the support of community-based IT (information technology) preparation and training in underserved communities. Approximately one fifth of American businesses spend 25 percent or more of their training budget on IT related training, and a large majority expect this to

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continue to increase rapidly because they know that productivity depends on their employees learning new technology skills and receiving ongoing coaching. Moreover, an estimated 350,000 jobs for computer programmers, system analysts, and computer scientists are currently unfilled. It is in the interest of business to extend its investment in IT training to underserved communities across the country.[53]

As a way of focusing on highest need areas, efforts should target the 130 urban and rural areas designated as empowerment zones and enterprise communities because of their "economic distress." Training should support the ongoing technology planning and operations needs of underserved communities as well as their work to develop community information portals and other content. Cisco's "Networking Academies" that operate in all 50 states and in 60 countries provide a useful model for building on training currently offered in the private sector and extending it to underserved communities. The academies offer a four-semester 280-hour program at nearly 1,200 high schools, colleges, and nonprofit organizations on how to design, build, and maintain networks.

In addition, a program should be developed to train community residents in creating Web content. Learning from the handful of technology leaders who have considerable experience providing content development training in underserved communities, such as Frank Odasz with Lone Eagles Consulting, training modules and "train the trainer" strategies can be put in place (see, for example, the Texas Community Networking Guide at http://lone-eagles.com/texas/). Furthermore, master trainers should also be available to "ride circuit" much like the circuit rider in the LINC Project who offers on-site technology assistance around the country in addition to periodic training to organizations involved in welfare reform (www.lincproject.org).

◎ **Create a New Economy Corps:** In a related measure to support the ongoing technology needs of underserved communities, private philanthropy, the corporate sector, and government should invest in a nationwide network of the people who support technical skills development in underserved communities. A New Economy Corps should be established to form a "people network." Serving as an information age counterpart to the Peace Corps but focused on the United States, New Economy Corps members would go into high-need communities and serve as catalysts for community building, using technology.

First suggested by Mario Morino and the Morino Institute, this cadre of young people, by understanding the potential of technology, would serve as innovators who "work with people, organizations, and institutions to improve their program and operational effectiveness, community outreach, communications, staff development, funding, and so forth."[54]

◎ **Strengthen and Expand the Nationwide System of Community Technology Centers:** The nation needs an ongoing investment in a nationwide network of institutions that can serve as the community-based technology hub in underserved communities, helping residents both produce and use relevant content. The early experience from roughly 1,500 community technology centers across the country affiliated with the Community Technology Centers Network[55] demonstrates the unique and vital role they play in recruiting into their centers residents who are the most underserved.[56] Libraries and schools have vital roles to play as well.

◎ **Offer Incentives for Content Developed by and for Underserved Americans:** Business and government should provide incentives for underserved Americans to create high-quality content that has value to their peers. Some extremely innovative, exciting online content has been developed by school-aged youth through contests like ThinkQuest (www.thinkquest.org/index.shtml) in which youngsters compete in teams — sometimes with teammates in other parts of the world — to create rich and complex Web sites. These efforts just scratch the surface of what is possible if incentives are provided for content creation. New microenterprise programs, social venture funding, and tax incentives are also promising approaches that should also be tried to foster content development and the e-commerce that can extend from this.

III. NEEDED RESEARCH AND DEVELOPMENT (R&D)

Historically, the higher education research community has pioneered important breakthroughs in technology and socially valuable applications, including the development of search engines. Schools of information science, engineering, and computing, for example, offer tremendous expertise in tackling difficult R&D challenges identified through our research. Corporate R&D, philanthropy, and government also have critical roles to play. And, more recently, efforts are under way to bring together university-based education researchers and product developers in private companies to guide the development of new products. For example, the National Science Foundation-funded Center for Innovative Learning Technologies (CILT) is showing the kinds of R&D breakthroughs possible when researchers and corporations join forces.[57]

◎ **Undertake Market Research About Underserved Americans:** We urge the philanthropic sector to fund additional research to better answer key questions:

- What obstacles prevent underserved individuals from using computers?
- What do various underserved groups want and need with regard to the Internet?
- In what ways are the needs and wishes of underserved Americans similar to and different from those of other Americans?
- What are the differences between underserved youth and adults?
- What are the differences between underserved males and females?
- Where in their communities do underserved Americans want to access the Internet and what kinds of IT training do they really need?
- What kinds of activities and community applications hold the greatest value?

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- How can youngsters in a household or underserved community best help others?
- What engagement activities work best for involving community residents in creating content?

Collect, Evaluate, and Disseminate What Works: There is precious little information about which online content and strategies are effective in improving opportunities for the underserved — whether measured by bringing them valuable goods and services, providing a bridge to higher literacy and opportunity, helping solve community problems, or promoting broader civic involvement.

We recommend that both government and the private sector track these activities and evaluate what is working to achieve these outcomes. As knowledge is gained, it should be made widely available. We urge other funders to follow the positive example set by The California Wellness Foundation in including a five-year evaluation effort as part of its California-based community technology program called Computers in Our Future.[58]

Develop a Business Model for e-Community-Building: Further work is needed to demonstrate to "investors" how underserved Americans behave as a "market." We urge entrepreneurs from underserved communities to join forces with business leaders and business schools to develop a business model for how e-community building works. This new thinking will encourage government and the private sector to provide social venture capital in the most effective ways.

Create New Search Capabilities and Other Tools: Search tools should be developed to quickly find online content written at a limited-literacy level. Natural language search engines, such as Ask Jeeves, serve as a good model to start to make the Web more accessible and useful for these groups.

In addition, we recommend developing a new software device that allows complex Web sites to be made simpler. This device would allow documents to be translated into simpler text, and/or read aloud by a computer voice so that the information can be understood through oral presentation in addition to text. This will enable people learning to read or those with special needs (such as limited-literacy groups or seniors with low vision) to use more of the Web.

Develop Standards to Guide Online Content Development: Standards have proven crucial in the development of other educational tools and media to ensure positive uses and a level playing field. Basic concepts, such as ensuring that online content is accessible at various literacy levels and in different languages, should be incorporated in the development of Internet standards.

Valuable models from other fields offer lessons and precedents. In the literacy area, for example, a standards development project called "Equipped for the Future" is engaging educators and others who work with adult literacy to develop adult literacy content standards from a student perspective. Similarly, a great deal can be learned from the disabled community, which has developed and started to implement standards to make sure the disabled have genuine access to information technologies. Standards have been written by a subgroup of the World Wide Web Consortium (W3C) to guide Web designers to make sites more usable for the blind and other disabled individuals. While these standards are voluntary, they are beginning to have a positive impact.[59]

Learn What Motivates the Underserved and Begin Outreach Efforts: A key finding in this report is that many Americans remain underserved because they do not see how the Internet can help them in their daily lives. Research should be undertaken to learn more about what uses of the Internet will genuinely inspire underserved Americans to give it a try. Second, more must be learned about how these ideas are most effectively communicated to underserved groups — whether by word of mouth from trusted friends, individual success stories that could be carried in local radio or television, or through other mechanisms. Based on these answers, tailored efforts should be made to reach out to underserved communities.

VII. CONCLUSION

In trying to chart a constructive course of action, we were sobered to realize how many facets of the telecommunications future are unknown and unknowable. And yet some of the scenarios that could unfold hold tremendous potential for solving the challenges raised here. If, for example, broadband develops in positive ways and voice activation becomes a mainstream feature of multimedia, a great many barriers that keep certain Americans underserved today will be removed.

We look forward to working with all interested parties to mount the advocacy needed to make these positive scenarios a reality. In the meantime, the findings from this Audit demonstrate the tremendous untapped opportunity for low-income and underserved Americans to benefit from new information tools; and for private enterprise to recognize the market value of low-income, underserved constituencies. This confluence represents a rare chance to advance the public's interest by using, in part, the power of the marketplace. We hope this first-ever analysis of the adequacy of online content for disadvantaged communities provides an impetus and road map that enable underserved Americans to improve their life prospects and the corporate sector to do its part to create a positive information society for our generation and those that follow.

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[16] US Department of Commerce, *op. cit.*

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[25] *Federal Register*, Vol. 65, No. 31, February 15, 2000, pp. 7555-7557. Poverty Guidelines state that a family of three earning less than $14,150 is classified as below the poverty level.

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References Errata

-- Footnote 9 - Substitute: Mediamark Research as cited in "Tracking the Internet Economy: 100 Numbers You Need to Know," *The Standard*, September 13, 1999

-- Footnote 25 - Add: Also, U.S. Department of Commerce, Bureau of the Census, "Historical Poverty Tables - People: Poverty Status of People, by Age, Race and Hispanic Origin: 1959 -1998," *Current Population Survey*, March 1999

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ing: Scientific, 6 percent; Pornography, 1 percent; Government, 1 percent; Health, 3 percent; Personal, 2 percent; Community, 1 percent; Religion, 1 percent; Societies, 2 percent; Commercial, 83 percent.

"The potential of the Internet to improve literacy skills has been demonstrated using a variety of methods. For example, scholarly research has documented the benefit of using hypertext information to improve reading; some studies are included in Appendix F. Community programs have also demonstrated the benefits, including, for example, literacy programs at the Brooklyn Public Library, where the Internet is used to improve reading. Similarly, new online literacy programs such as Literacy Link and LINCS, which use the Internet as a primary tool in adult literacy development, are also showing promising results.

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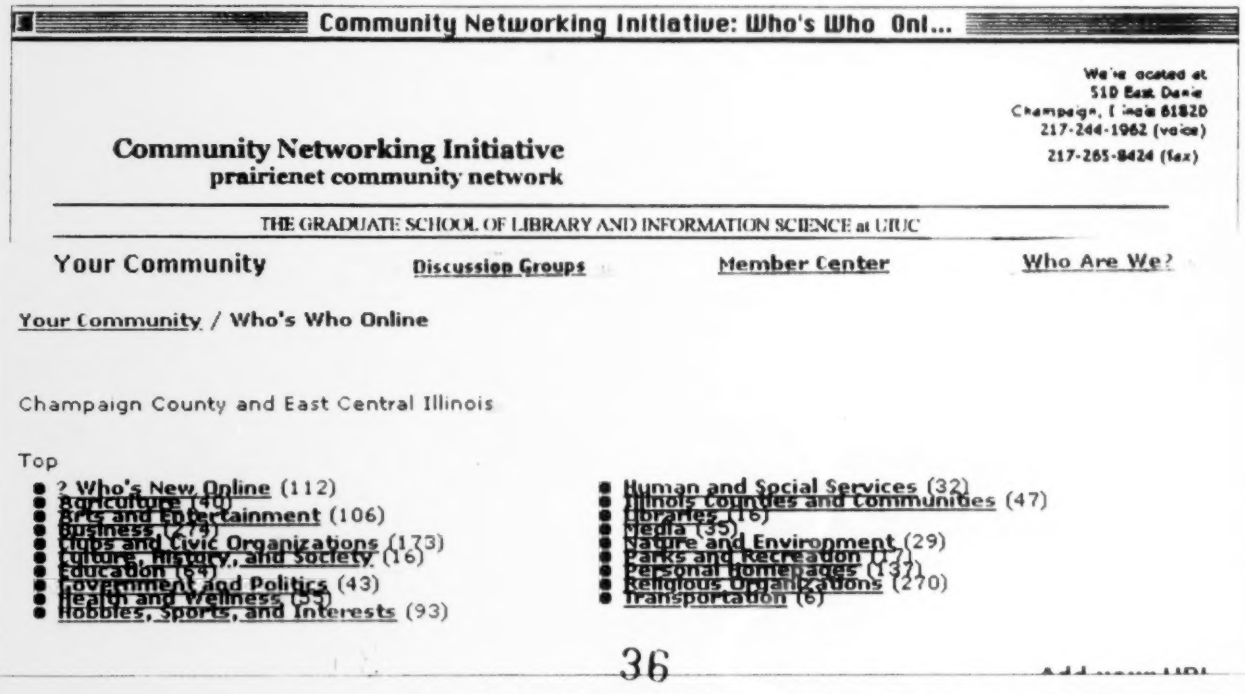

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APPENDIX A

PEOPLE INTERVIEWED FOR THIS AUDIT

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APPENDIX B

CONTENT CATEGORIES USED

Education
Family
Finance
General Information
Government and Advocacy
Health
Housing
Personal Enrichment
Profession/Vocation/Job

BREAKDOWN OF CATEGORIES

Education
- Adult high school degree programs
- Adult literacy
- Financial aid, scholarships
- Counseling
- Homework and research assistance
- Subject area information
- Computer education
- Distance learning programs
- Telementoring
- Referrals (e.g., online or in-person, local support, coaching)
- Other

Family
- Guides for parents (e.g., local activities for families, parenting tips)
- Public programs for families (e.g., food and social services, domestic violence help)
- Low-cost enrichment and entertainment activities
- Activities for kids
- Child care (e.g., low-cost care, finding and assessing the quality of a child care center)
- Referrals (e.g., online or in-person, local support, coaching)
- Other

Finance
- Consumer information (e.g., how do you buy a used car, a house, a computer)
- Public benefits eligibility (e.g., food stamps, social services)
- Public benefits news and updates
- Using a checking account
- Applying for credit, maintaining good credit
- Referrals (e.g., online or in-person local support and coaching)
- Other

General Information (Other)
- Community events
- Local search engines

Government and Advocacy
- Taxes support (e.g., filing, laws)
- Immigration assistance
- Legal services
- Unemployment benefits
- City/county government services
- State government services
- Referrals (e.g., online or in-person local support and coaching)
- Other

Health
- Health information (e.g., self-care guide for individuals and families)
- Easy-to-understand health encyclopedias
- Health education
- Online advisors (e.g., online pharmacist)
- Insurance resources (e.g., sources of low-cost insurance)
- Public hospitals
- Local clinics (e.g., free screenings)
- Referrals
- Other

Housing
- Low-cost housing
- Low-cost utilities
- Buying a home
- Neighborhood crime rates
- How to relocate to a different city, neighborhood, or state
- Home repair and other issues (e.g., paint, asbestos/chemical problems)
- Referrals (e.g., online or in-person support and coaching)
- Other

Personal Enrichment
- Ethnic interests (e.g., foreign-language newspapers and search engines, ethnic communities)
- Communities of interest for youth and adults
- Sites of general interest to low-income users
- General reference tools (e.g., dictionaries)
- Arts and entertainment (e.g., local, online)
- Transportation
- Referrals
- Other

Profession/Vocation/Jobs
- Vocations (e.g., types of careers, schools, financial aid)
- Professions (e.g., types of careers, jobs available)
- Career counseling, free or low-cost (e.g., libraries, employment development departments, job training programs)
- Local and national job listings
- Job readiness (e.g., resume, skills matrix)
- Entrepreneurship, starting your own business (e.g., small-business loans, creating a business plan)
- Grants for minority businesses
- Referrals (e.g., online or in-person support and coaching)
- Other

APPENDIX C

ONLINE NETWORKS/PORTALS ANALYZED IN THIS STUDY

About.com
http://www.about.com

Austin Free-Net
http://afn-neighbor.net

Blacksburg Electronic Village
http://www.bev.net

Boulder Community Network
http://bcn.boulder.co.us

Brooklyn Public Library
http://www.brooklynpubliclibrary.org/reference/reference.htm#Librarians

Charlotte's Web
http://www.charweb.org

The Community Connector
http://www.si.umich.edu/community

Davis Community Network
http://dcn.davis.ca.us

Eugene Free Community Network
http://www.efn.org

FairNet
http://www2.edc.org/ctcnet/ctc.asp

LibertyNet
http://libertynet.org

Los Angeles Free-Net
http://www.lafn.org

Midnet
http://www.midnet.sc.edu/midcom/index.htm

Prairienet
http://www.prairienet.org

Public Libraries of Saginaw, Michigan
http://www.saginaw.lib.mi.us

Sailor
http://www.sailor.lib.md.us

Snap.com
http://www.snap.com

TINCAN (The Inland Northwest Community Access Network)
http://www.tincan.org/

Tripod.com
http://www.tripod.com

Yahoo
http://www.yahoo.com

APPENDIX D

CONTENT CRITERIA USED

Each Web site selected was evaluated according to the following criteria on a scale from 5 to 1.

5 = Excellent, "The Best I've Seen"
4 = Very Good
3 = Average
2 = Below Average
1 = Poor, Nonexistent

Usefulness

- Is the information relevant to one or more of the categories important to our target groups?
- Is the information current information? (e.g., updated within the last six months for time-sensitive information)

Language/Literacy Level

- Is the information available in other languages?
- Is the information accessible to a nonnative speaker, or a person with the reading level of an early reader?

Intuitive Navigation (Interface Design)

- Can the user move quickly through the site without having to stop to think or read too much?
- Does the site provide good links and annotated links so users know ahead of time where they're going?
- Do the graphics enrich content and add to it in a logical fashion, not merely decoratively?

Interactivity (Extensibility)

- Can the user interact with the site? Can she/he send e-mail for quick help, or participate in a list-serv, or a bulletin board service? What other kind of interactivity is possible?
- Can the user add to the site?

APPENDIX E

ONLINE CONTENT FOR UNDERSERVED AMERICANS: A SHOWCASE

Following is a sampling of some of the best content destinations we found in that they overcome content barriers addressed in this report. This showcase is intended to provide concrete examples of positive features that underserved users view as important; it is by no means a comprehensive listing. Some of these examples are also featured in the body of the report.

SAMPLER OF INNOVATIVE PROGRAMS

CONTENT FOR LEARNING

Blue Web'n Learning Sites Library
(http://www.kn.pacbell.com/wired/bluewebn/)
This site is an example of excellent aggregation of practical information. It is a project of the Pacific Bell Knowledge Network (http://www.kn.pacbell.com/wired/bluewebn/). The high-quality education content on this site contains material for different kinds of learners, encompassing bilingual content as well as learning tools. The searchable database of 1,000 outstanding Internet learning sites is categorized by subject area, audience, and type (lessons, activities, projects, resources, references, and tools).

The Pacific Bell Knowledge Network also offers a project involving two sites, Videoconferencing for Learning (http://pomo.kn.pacbell.com/support/workshops.html) and Filamentality, a workshop site that contains a tool for teachers to help them integrate good Web sites into their curriculum. In a three-hour workshop they learn how to start doing this and can, in turn, teach kids.

Western Pacific LINCS: A Project of the National Institute for Literacy
This project is a partnership between the CNN office in San Francisco and Western Area Literacy LINCS (http://literacynet.org/cnnsf/), one of the LINCS regional hubs. LINCS is a key gateway for the literacy community to the world of adult education and literacy resources on the Internet (http://literacynet.org/lincs/). CNN-SF provides content and abridged stories that are useful to adults learning to read or who are improving their reading ability. The site provides many tools for interpreting each story. This scaffolding helps users learn how to decode text and become fluent readers. Users can interact with the whole story, an abridged version, or a story outline; they can perform various learning activities, involving vocabulary, word selection, multiple choice, and sequencing (arranging the chronology of the story).

This site exemplifies deep, multilayered content that incorporates audio and video to help learners and engage them in meaningful and productive learning activities. The depth of the content allows for active participation.

CONTENT FOR COMMUNITY RESIDENTS

Prairienet
Prairienet (http://www.prairienet.org/online/) is part of the Community Networking Initiative (CNI) at the University of Illinois, Urbana-Champaign. Prairienet is seen as the repository of community information, and, in its relatively long history, it has earned the respect of the community. The network has trained more than 500 low-income individuals in computer skills and has given them free computers and Prairienet accounts after completion of a training course. The network has also worked with many community organizations to put information about them online, resulting in more than 700 groups being included on the portal. More of these sites now focus on providing information for low-income users. In addition, CNI has collaborated with local health and human service organizations to develop comprehensive Web-based information and referral directories and other cross-institutional information resources.

Brooklynx
This is a program of Brooklyn Information & Culture (part of the larger Brooklyn Knowledge Network, a "smart community"), which is creating a community-based online network. Brooklynx is helping communities develop an online presence in the following ways:

1. Offering access to computers;
2. Offering Internet training and Web publishing classes; (http://www.bkny.net/neighborhoods/training/page.html)
3. Providing free technical support to local organizations;
4. Maintaining www.brooklyn.org., a highly designed web site containing a map of Brooklyn. A user can click on each neighborhood represented on the map and go to a local portal (http://www.bkny.net/neighborhoods/). These local portals contain employment, cultural, and housing information; these sites are created by the community organizations themselves.

Brooklynx is putting into practice many of the most crucial elements necessary to foster development of content for underserved constituencies: bringing together leaders from community-based organizations, teaching them how to put their organizations and services online, and offering technical support. With this type of outreach, content grows – directly – from the community.

Increased funding for training will allow Brooklynx's outreach effort to involve end users more directly. Up to now, the program has been working primarily with leaders of community-based organizations, which often lack the resources to build a Web presence. The next step would be to provide more online information and services to clients directly.

Brooklynx is an excellent example of state- and city-wide network projects developing throughout the country, some of which are taking place within neighborhoods and housing complexes. One of their best features is the ability to leverage partnerships between different organizations and corporations. Brooklynx is a partner in the Brooklyn Knowledge Network, which includes the Brooklyn Public Library, Brooklyn schools, and other organizations. In partnership with Bell Atlantic, an advanced network has been built at the central library.

Mapping The Assets
http://www.mappingtheassets.org/foundations.html
Connecticut Public Television and Radio is working with IBM Research on an effort to link public institutions to one another and to citizens throughout the state. The project is called "Mapping the Assets." It is working to transform television into low-cost Internet gateways that provide educational, civic, health, arts, and cultural services. The five-year project includes a series of sessions with different segments to determine the best way to provide and to deliver content, as well as to learn from the community what it wants. The early participation of the community in the conceptualization and design helps to ensure that services will be more usable and engaging to the end users. By mapping the assets within each community, this project builds on what is already available in Connecticut's communities.

SUPPORT FOR THE DEVELOPMENT OF CONTENT

Community Access Centers
Community Access Centers are growing around the country. The Community Technology Center Network (CTCNet) includes many of these centers as affiliates. The organization offers access and training as well as excellent technology expertise to communities. National evaluations have documented the positive impact of these centers in reaching the underserved and providing them valuable services.

These access centers have tremendous potential to help generate content by underserved communities because they build a sense of community and can create projects for local residents. Playing2Win in New York City, for example, offers a technology training program for youth in the summer where young people learn advanced Web and multimedia design. This project-based learning experience encourages kids to continue to develop skills to build more digital products to share with others. Another community access center, the Bay Area Video Coalition, trains low-income adults to enter new media professions.

"Imagination Place!"
While youth at some community access centers are creating their own video games (Playing2Win), making movies (at ZEUM in San Francisco), and designing other digital artifacts (Computer Clubhouse), there are also other sophisticated online spaces for youth that support learning and exploration in fun and fruitful ways. "Imagination Place!" (http://www.lff.org/demo/hpc/accessharlem.html) is a collaboration between the Center for Children and Technology and Kahootz, a private software developer. The program is housed in inner-city libraries around the country. Extensive online activities are designed to encourage young girls to become engineers and designers.

The online environment is very elaborate with many tools (hundreds of palettes, for instance) for kids to design animations and talk to each other. The Center for Children and Technology planned and designed the entire curriculum, and Kahootz created the online environment. Other components of the project include the following:

- Mentorship by professional adults;
- Designing with online tools with a wide set of options; and
- Designing imaginary inventions offline to learn what design is.

ThinkQuest
http://www.thinkquest.org/index.shtml
This site contains a large collection of high-quality Web sites produced by children and youth who compete in yearly contests offered by ThinkQuest. The contest offers teams of children and youth from around the world cash prizes for the best educational page. There are three contest groups: a junior group (grades four through six), one for students between the ages of twelve and twenty, and another for future teachers. The pages cover numerous subjects, from the stock market and programming to Edgar Allan Poe. The site contains a searchable library with over 1,000 student-authored sites that are very impressive as well as useful. The contest encourages and challenges the intellectual capacity and energy of youth to build online content that is useful to others.

WeGo.com
http://wego.com/index.html
This company offers nonprofits (and other organizations such as trade associations) a set of tools to create, manage, and host their own customized community information portals, or intranet. The tools are relatively easy to use and offer the following features: home pages, web pages, chat, announcements, calendars, discussions, shared files, Web links, search, and an e-commerce mall.

WeGo.com enables groups to create portals, and because these tools enable communities to develop online marketplaces, they hold the potential to encourage e-commerce activities in communities.

SAMPLER OF OTHER GOOD WEB SITES

We selected the following Web sites from the twenty portals analyzed in our audit of the World Wide Web. Key informants and users suggested additional sites. In general, we chose sites because the content was relevant to the low-income and underserved users we talked to; the interface presented the content intuitively; and some were written for people with limited literacy and limited English skills. These URLs, which are current at the time this document was published, are subject to change.

BILINGUAL/ESL

Please see "Overcoming Literacy, Language, and Cultural Barriers," page 22-23)

CHILDREN AND YOUTH

700+ Great Sites
http://www.ala.org/parentspage/greatsites/
The American Library Association compiles sites for kids and guides the adults who care for them to safe and secure content.

Back to School: Resources for Reentry Students
http://www.back2college.com/
A resource with a wide library that contains a college locator and information on a range of subjects (e.g., study abroad, internships, and discount textbooks). Feature articles appear on the front page with stories pertinent to students reentering college.

Brain Pop
http://www.brainpop.com
Animated movies that explain health matters and answer science and technology questions in child-friendly way.

e-teen
http://www.e-teen.net/
A socially conscious teen network for teens by teens, where they can become involved in community activities, building Web sites, entering contests, volunteering, and discussing social issues.

Highwired.Net
http://www.highwired.com/
This site calls itself the world's largest community of online high schools. Students publish online versions of newsletters and newspapers with free Web publishing tools. The site also fosters interaction among high schools.

YoungBiz
http://youngbiz.com/
YoungBiz contains entrepreneurial ideas for young people. Profiles of young entrepreneurs and message boards are also part of this site. In addition it provides educational information about business concepts, especially those related to investment.

EDUCATION

College Is Possible
http://www.collegeispossible.org/
Information prepared by universities and colleges for preparation, selection, and finance of higher education.

College Net
http://www.collegenet.com/
A portal for applying for college over the Web.

Education World (Student Resources)
http://db.education-world.com/perl/browse
A site that makes the Web easier for educators, with an extensive database.

FinAid: The Smart Student Guide to Financial Aid
http://www.finaid.org/
A guide for financial aid that includes links to scholarships, loans, and financial aid information.

GED Information
http://www.acenet.edu/calec/ged/home.html
The official site for GED tests. It offers guidance for preparing and taking the exam.

Homework Help
http://www.bjpinchbeck.com/
A unique site created by a young teenager that offers help in various education subjects and other relevant areas, including SAT preparation.

Learn2.com
http://www.learn2.com/
Extensive database of online tutorials on topics beyond traditional education subjects, such as desktop utility tools and home repairs.

The Math Forum Student Center
http://www.forum.swarthmore.edu/students/
This is one of the model interactive projects from the Math Forum, an online math education community center. Here students can request math support from elementary to college levels.

OneLook Dictionaries
http://onelook.com/
This tool allows users to search the OneLook Dictionary indexes (590 dictionaries) for word definitions. Or they can link directly to a dictionary page.

Online Learning Series of Courses
http://www.bestnet.org/~jwalker/course.htm
Online learning series available for computer literacy, web development, and programming. Users can translate the page into French, German, Italian, Spanish, or Portuguese.

Resource Library from Blacksburg Electronic Village
http://www.bev.net/library/index.html
This site from the Blacksburg, Virginia, community network collects various local and generic resources for a variety of needs.

Study Guide
http://www.iss.stthomas.edu/studyguides/index.htm
Study guides and strategies for academic skills available in Arabic, Chinese, French, German, Italian, and Turkish.

Study Web "The Learning Portal"
http://www.studyweb.com/
The site contains a comprehensive index that categorizes and reviews over 28,000 educational and reference Web sites and, through a clear interface, links users directly to their desired information.

Web Teacher
http://www.webteacher.org/winnet/menu.html
A self-paced Internet tutorial with both basic and in-depth information about the World Wide Web. The site covers topics such as e-mail, video conferencing, chat rooms, Web page design, Internet safety, and curriculum searches; users can learn at their own pace through guided information and online exercises and activities.

FAMILY

Austin Metro Area Child Care Directory
http://www.careguide.net/careguide/yahoo/austin.html
This site allows the user to select a local city, where they can find local services for infant, toddler, and school-age children. It contains a map and contact information for services.

CTW (Children's Television Workshop) Family Workshop
http://ctw.org/home/0,1042,FF.html
This site is designed to be an environment that enriches the time families spend together. It contains activities for all members of the family. Parents can create stories with their toddlers and become Web savvy with the technology tips offered.

Family Support Resources (The Inland Northwest Community Access Network)
http://www.tincan.org/~headstrt/family.html
A network of localized information for family-related needs.

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Parents Place.com
http://parentsplace.com/
A rich site for parents of newborns and young children. It contains various departments (from fertility to immunization records) and other services, such as daily chats, ask an expert, daily parenting news, and a radio show.

Sesame Street Online
http://www.ctw.org/parents/0,1178,00.html
Practical tools for parents are found at this site. Parents will find activities for kids, product reviews, advice and tips.

Single Parents
http://www.makinglemonade.com/
A site that provides a channel for single parents to network and learn from each other. One of the features is a business network of single parents who have created their own businesses. The resources section includes links to legal and financial services.

FINANCE

Fidelity Family Financial Center
http://disney.go.com/ads/sponsors/fidelity/index.html
Tools and information available at this site for calculating (and managing) college and retirement savings.

Finance Center
http://www.financenter.com/
Smart personal finance information for autos, budgeting, and homes.

Yahoo Finance
http://insurance.yahoo.com/
Calculation tools offered at this Web site for auto, home, and personal insurance. In addition, it contains resources, Web sites, and articles.

GOVERNMENT

FedWorld
http://www.fedworld.gov./ftp.htm#irs
This site contains more than 10,000 data files of various sorts that have been produced by U.S. government agencies. Some of the files include the Federal Job Announcements in the jobs directory, White House press releases, and IRS tax forms and instructions.

Social Security Welfare Reform
http://www.ssa.gov/pubs/faq.html#CARDS
Answers to frequently asked questions about Social Security Administration services, such as Social Security cards and numbers, and maximum family benefits.

The Tax Center
http://www.armchairmillionaire.com/tax/forms.html
Some of the most important federal tax forms for individuals and small businesses are collected here. They also have annotations.

Vote-Smart
http://www.vote-smart.org/
Citizen's toolkit of free services and programs. The site tracks and provides to the public independent factual information on over 13,000 candidates and elected officials. Vote Smart Web makes available voting records, campaign issue positions, performance evaluations by special interests, campaign contributions, backgrounds, previous experience, and contact information.

HEALTH

Discovery Health
http://www.discoveryhealth.com/DH/ihtIH
Large site for health information for the whole family, all age groups, nutrition guides, and an "ask the doctor" section.

Health Finder
http://www.healthfinder.gov
Information for the whole family and a minority health guide. Available tools include libraries, online journals, medical dictionaries, and database.

Health Resource
http://www.noah.cuny.edu/
Excellent example of a local health resource with full-text health information for consumers. It contains health topics (from "aging and Alzheimer's" to sickle cell disease) and resources on New York city, state and regional hospitals; HMOs; and hospices.

LITERACY

Please see "Overcoming Literacy, Language, and Cultural Barriers," page 22-23.

PROFESSION/VOCATION/JOBS

All About Work
http://www.nhlink.net/employme/index.htm
Local job information on this site, plus helpful answers to employment questions in a simple format.

America's Career InfoNet Resource Library
http://www.acinet.org/acinet/resource/
Ideas and assistance for where to go or what to do when searching for employment. This site links to other resources to find ideas and answers. Information is grouped into four main areas: occupational information, job search aids, job and resume banks, and relocation.

Eastbay Works
http://www.eastbayworks.org/
An online directory of services designed to take the user through a series of self-service steps in one visit or over time; video clips guide parts of the process. The development of this site is still in progress. As an Internet Web site, the directory has links to regional partners and community resources to enable users to identify support.

STEP (Searching for Training and Employment Programs)
http://www.ci.seattle.wa.us/business/step/
This is an online guide for job seekers to hundreds of resources for career planning, job search assistance, job skills training, apprenticeships, and self-employment in local counties in the Seattle area.

SHOPPING

Bottom Dollar Shopping Agent
http://bottomdollar.com
At this site one can compare prices in numerous categories.

Consumer Central
http://www.pueblo.gsa.gov/
This Web site gives access to hundreds of the best federal consumer publications.

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Consumer Information
http://www.dca.ca.gov/r_r/index.html
Department of Consumer Affairs, providing statewide information for consumers.

Consumer World
http://www.consumerworld.org/
Consumers will find shopping information (e.g., price comparisons, product reviews, catalogs, and stores), discounted merchandise, and other consumer resources.

ESmarts
http://www.esmarts.com/
This Web site offers buying guides for many consumer items, including books, electronics, and tickets. The site critiques various online services to help consumers make better choices.

EvenBetter.com
http://www.evenbetter.com/
A tool to compare prices at different Web sites. It also allows users to download a price comparison feature which they can access when browsing a shopping site, and thus avoid leaving the site.

U.S. CITIZENSHIP

50 States and Capitals
http://www.50States.com/
Information about each state and its capital.

Immigration and Naturalization Services Online
http://www.ins.usdoj.gov/
This government Web site provides forms and fee information; forms by mail; answers to frequently asked questions; and glossary and acronyms, among other services.

The National Network for Immigrant and Refugee Rights
http://www.nnirr.org/
The site offers information about local affiliates around the country and instructions for immigration assistance.

APPENDIX F

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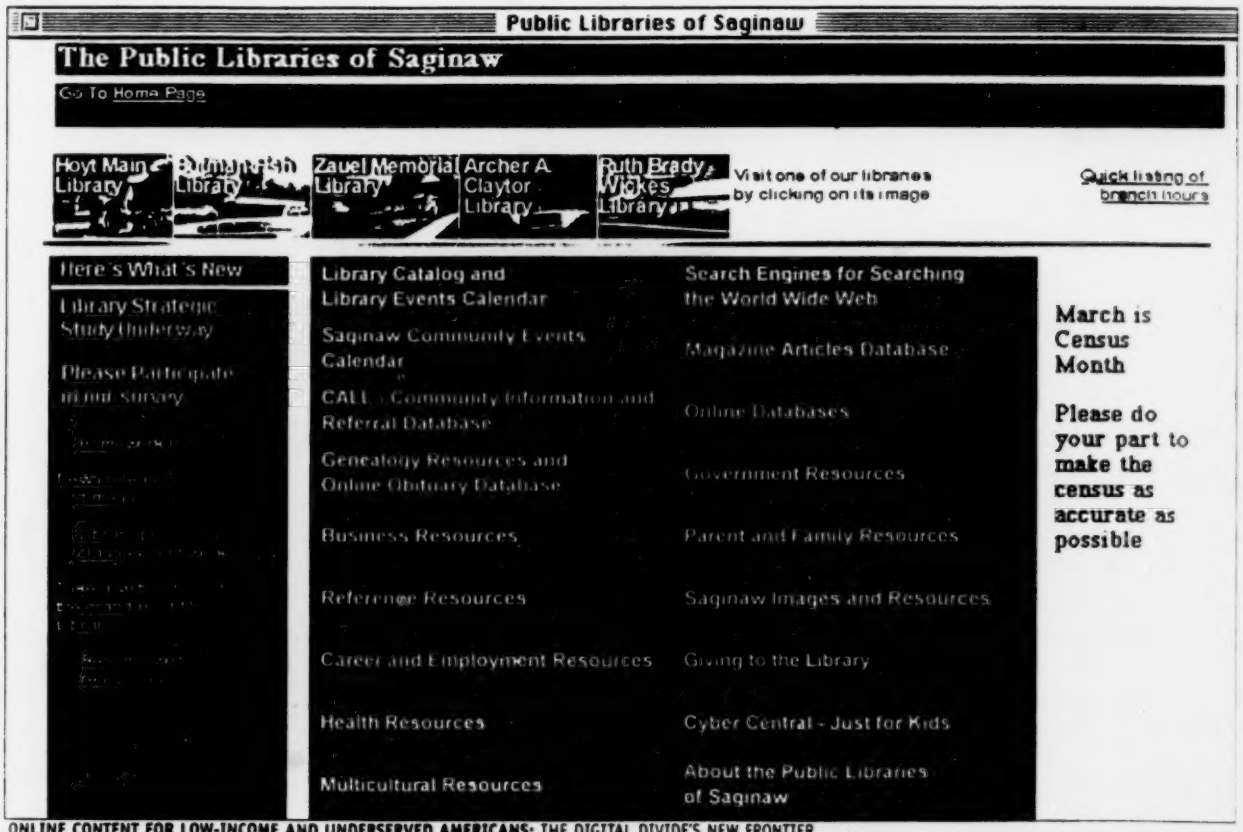
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The Children's Partnership is a national nonprofit, nonpartisan organization. We undertake research, analysis, and advocacy to place the needs of America's nearly 70 million children and youth, particularly the underserved, at the forefront of emerging policy debates. The hallmark of The Children's Partnership is to forge agendas for youth in areas where none exist, to help assure that disadvantaged children have the resources they need to succeed, and to involve more Americans in the cause for children. We are grateful to our funders, including America Online, AOL Foundation, ARCO Foundation, AT&T Foundation, California Community Foundation, The California Endowment, The California Wellness Foundation, Carnegie Corporation of New York, Coalition of Community Foundations for Youth, Nancy M. Daly Foundation, Joseph Drown Foundation, The Favrot Fund, The Ford Foundation, Foundation for Child Development, The Johnson Foundation, The Robert Wood Johnson Foundation, The Henry J. Kaiser Family Foundation, W.K. Kellogg Foundation, KPMG Peat Marwick, Morino Institute, Markle Foundation, Mattel Children's Foundation, Microsoft Corporation, MSNBC, Pacific Bell, David and Lucile Packard Foundation, Southern California Edison and The Streisand Foundation.

"With this Audit, The Children's Partnership is making an important contribution towards understanding what under served communities want and need in the on line world. Their findings support the notion that the "digital divide" can become a "digital opportunity" if online content address the real needs of low-income communities, and if that information is presented in a useful and localized way. TCP should be commended for their work."

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